BUILDING 2 SIDING AND STRUCTURAL STEEL SCREENING STUDY REPORT
ST. LOUIS ARMY AMMUNITION PLANT
ST. LOUIS, MISSOURI
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LIST OF ABBREVIATIONS, ACRONYMS, AND TERMS

2,3,7,8-TCDD	2,3,7,8-Tetrachlorodibenzo-p-dioxin
ACM	Asbestos Containing Material
AMCCOM	U.S. Army Armament, Munitions, and Chemical Command
AMCOM	U.S. Army Aviation and Missile Command
ATCOM	U.S. Army Aviation and Troop Command
AVSCOM	U.S. Army Aviation Systems Command
BRACO	Base Realignment and Closure Office
CENWK	U.S. Army Corps of Engineers, Kansas City District
CEWES	U.S. Army Corps of Engineers Waterways Experiment Station Environmental Laboratory, Omaha, Nebraska
cm^2	square centimeter
EBS	Environmental Baseline Survey
EPA	U.S. Environmental Protection Agency
FSP	Field Sampling Plan
ft^2	square feet
g	grams
kg	kilograms
LBP	Lead-Based Paint
MDNR	Missouri Department of Natural Resources
MS	matrix spike
MSD	matrix spike duplicate
mg	milligrams
mm	millimeter
PCB	Polychlorinated Biphenyl
pg	picograms
QA	Quality Assurance
QAPP	Quality Assurance Project Plan
SAP	Sampling and Analysis Plan
SLAAP	St. Louis Army Ammunition Plant
SLOP	St. Louis Ordnance Plant
SSEBS	Site-Specific Environmental Baseline Survey
STL	Severn Trent Laboratories, Inc.
TEQ	Toxicity Equivalency Quotient
TTEMI	Tetra Tech EM, Inc.
ug	micrograms
URS	URS Group, Inc.
USACE	U.S. Army Corps of Engineers
USATHMA	U.S. Army Toxic and Hazardous Materials Agency
UST	Underground Storage Tank

1.1 PURPOSE OF REPORT

The purpose of this Siding and Structural Steel Screening Study is to address the potential for contamination on the building materials of Building 2 at the St. Louis Army Ammunition Plant (SLAAP), herein referred to as "the Site". This report provides an initial screening of the contamination on the transite siding/roofing and structural steel present in Building 2. However, the data provided in this study do not provide a comprehensive characterization of the nature and extent of contamination on the building materials.

This document was prepared by URS Group, Inc. (URS) on behalf of the U.S. Army Corps of Engineers (USACE), Kansas City District (CENWK) and the Army's Base Realignment and Closure Office (BRACO), Fort McPherson, Atlanta, Georgia under URS Contract number DACW41-96-D-8014, Task Order 0019. This Screening Study is intended to be used in its entirety and no excerpts may be taken to be representative of the findings of this investigation. The use or re-use of this document or the findings, conclusions, or recommendations presented herein, by any other party or parties is at the sole risk of said user. URS makes no representations regarding the value or marketability of this property or its suitability for any particular use, and none should be inferred based on this Screening Study.

1.2 REPORT ORGANIZATION

This report presents analytical results from samples collected from materials in Building 2 during the September 2003 sampling event at SLAAP. Following is a general outline of this Screening Study.

Section 1.3 includes a brief description and history including manufacturing processes that were operated in Building 2. Section 1.4 provides results from relevant previous investigations. Section 2.0, Building 2 Screening Investigations, is structured similarly to the Field Sampling Plan (FSP) for the Building 2 Siding and Structural Steel Screening Study - Part I of the Sampling and Analysis Plan (SAP) (URS, 2003a). The descriptions are organized by material sampled and include location and quantity of samples and any deviations from, or elaboration to, the detail provided in the FSP. Section 3.0 presents the analytical results for the samples collected during the September 2003 sampling event. Section 4.0 cites the various publications referenced in this report.

Tables include a summary of the physical features of Building 2 (**Table 1-1**) and a summary of the analytical results (**Table 3-1**). **Figure 1-1** presents the installation layout, including historical and present-day Site boundaries. **Figure 2-1** presents all of the sampling locations for this investigation. **Appendix A** includes the complete analytical results for all samples collected during the September 2003 sampling event. **Appendix B** contains copies of all of the sample collection field sheets, including sample location sketches. **Appendix C** is a photographic log of the sample locations and other photographic documentation of the sampling activities and the building.

1.3 SITE BACKGROUND

1.3.1 Site Description

General Site Layout from 1941 to 1944

From 1941 through 1944, SLAAP was part of the St. Louis Ordnance Plant (SLOP) designed to manufacture small arms ammunition. See **Figure 1-1** for the original and present Site boundaries and building layouts. The north boundary of the property ended along the north side of the train tracks that served former Building 202 ABC (Building 3, now demolished). In the extreme northwest area, the property boundary extended approximately 280 feet north to accommodate a parking area measuring approximately 360 by 280 feet. Except for a guard house (Guard House 209 E), no buildings or manufacturing activities appeared to have occurred at areas north of the railroad train tracks that ran north of Building 3. Residential housing units were located to the north of the SLOP property.

The small arms ammunition (.30-caliber) production unit was comprised of the following four manufacturing buildings:

- a .30-caliber production building (Building 3)
- a .30-caliber loading building (then referred to as Building 202D, now Building 5)
- a .30-caliber primer insert building (then referred to as Building 202E, now Building 6)
- a powder canning building (then referred to as Building 202F, later converted to the acetylene production building (Building 9), now demolished)

Other buildings included the powder storage building (Building 202H, now demolished), oil storage buildings 202 J and 202 K (now demolished but originally located south of Buildings 5 and 6, respectively), Guard Houses 209 and 209 F, and Building 236 D. Guard House 209 was located on the northeast area of the property on Riverview Boulevard. Guard House 209 F was located at the northwest parking area entrance. Building 236 D was a fire equipment garage, which is now adjacent to the SLAAP Compressor Building (Building 4).

General Site Layout after 1944

A total of eleven buildings were utilized in primary production and support roles. Four of these buildings were retrofitted from .30-caliber manufacturing operations to accommodate 105-millimeter (mm) Howitzer shell production (Buildings 3, 5, 6, and 9). The remaining buildings (Buildings 1, 2, 4, 7, 8, 10 and 11) were constructed in 1944.

Primary manufacturing operations were conducted in Buildings 1 through 3. Building 1 housed billet cutting operations, Building 2 served as the forging center, and Building 3 contained the machining operations. Support functions to manufacturing operations were provided by Buildings 4 through 11. Building 4 contained air compressors to supply various operations. Buildings 5 and 6 provided office and laboratory space. Buildings 7 and 7A cooled non-contact waters used during manufacturing. Buildings 8 (fuel oil tank farm) and 8A (fuel oil tank pump room) delivered fuel to the rotary furnaces in Building 2. Buildings 9 and 9A through 9D generated acetylene and housed an oxygen converter and receiver in support of Building 1

operations. Building 10 stored and supplied quench oil to the Building 3 heat treating operations. Buildings 11, 11A and 11B generated foamite to support fire suppression efforts.

1.3.2 Site History

SLOP was constructed in 1941 as a 276-acre, small arms ordnance plant that produced .30- and .50-caliber munitions. In 1944, 21.05 acres in the northeast portion of SLOP were converted from small arms munitions production to 105-mm Howitzer shell production. This area and additional land that was acquired to the north of the northwest parking area were designated as SLAAP. Currently, the SLAAP property contains seven unoccupied buildings that were used to house the main operating processes.

Following conversion to 105-mm Howitzer shell production in 1944, a total of 2,500,000 shells were produced for World War II until the plant was placed on standby in September 1945. Operations were reactivated on March 25, 1951 by the Chevrolet Motor Division to support the Korean Conflict. From 1951 to 1954, the plant produced 19,094,325 shells. Plant operations were terminated on May 1, 1954 and SLAAP was placed on interim maintenance status. In 1966, the Chevrolet Motor Division reactivated the plant to support the Vietnam War. Production resumed in November 1966 and continued through December 1969. The production rate reached 600,000 shells per month shortly before operations were terminated. In total, the plant had produced a total of 23,878,646 shells in all three runs (USATHMA, 1979).

After World War II, SLAAP was placed on standby status. It was reactivated from November 1951 to December 1954 and again from November 1966 to December 1969 to support 105-mm Howitzer shell production. The plant was maintained and operated by the Chevrolet Shell Division of General Motors from 1951 until 1958, by the U.S. Defense Corporation from 1958 to 1966, and by the Chevrolet Motor Division of General Motors from 1966 until 1972. At that time, the plant maintenance and surveillance contract was awarded to the Donovan Construction Company.

In 1984, buildings at SLAAP were renovated to house filing and administrative operations by more than 500 personnel from the U.S. Army Aviation Systems Command (AVSCOM). From 1986 to 1990, SLAAP was under the command of the U.S. Army Armament, Munitions, and Chemical Command (AMCCOM). In 1989, the Department of the Army determined that SLAAP was no longer required to support its munitions mission, and most industrial equipment was removed from the plant. In 1990, plant ownership and control were placed under the U.S. Army Aviation and Troop Command (ATCOM). Beginning in 1993, Donovan Construction Company subcontracted the SLAAP maintenance and surveillance activities to Plant Facilities and Engineering, Inc. From 1998 to the spring of 2003, SLAAP was vacant and under the control of U.S. Army Aviation and Missile Command (AMCOM). The responsibility for the disposition of the site was transferred to BRACO in the Spring of 2003.

Wastewater discharges from SLAAP were monitored periodically by the Metropolitan St. Louis Sewer District, and discharges were in compliance with applicable city ordinances. Solid wastes and some liquid wastes were removed from SLAAP for off-site disposal and recycling by a local contractor (USATHMA, 1979).

1.3.3 Building 2 Background and Production Processes

Manufacturing Processes from 1941 to 1944

Building 2 was constructed in 1944 to support the 105-mm Howitzer shell production. Prior to construction this area was the northwest parking area and there were no production processes.

Manufacturing Processes after 1944

Building 2 served as the forge building, housing a total of 10 rotary furnaces (5 were combination natural gas- and oil-fired rotary furnaces and 5 were oil-fired furnaces) for slug heating and forging. The inside of the building was almost symmetrically configured, with five rotary furnaces on each side of the building. The cut billets were received from Building 1 and fed into the rotary furnaces. Each furnace was equipped with a rectangular skid conveyor that transferred the hot billet to the sizing and descaling units. The billets were then transported to the piercing presses, where a cup was first formed through hydraulic force. Two piercing presses served each rotary furnace. Following piercing, the billets were then transferred to the hydraulic presses and draw benches, where they were drawn through a series of progressively smaller ring dies. After drawing, the formed billet was inspected and cut to length at the hot cut-off machine. One cut-off machine was present at each rotary furnace unit. The shells were then transferred by the air-cooling conveyor to the water quench tanks. A descaling tank was located in the center of the western half of the building. After cooling, the shells were mechanically conveyed to the second floor of Building 3 by an elevated covered bridge that connects these two buildings.

Hydraulic accumulators (one on each side of Building 2) were utilized to supply hydraulic oil to the forging process. Each hydraulic accumulator consisted of 10 hydraulic pumps connected to an above ground, 5,000 gallon oil tank in the middle section of the building. Natural gas was supplied by an underground utility supply system. No. 6 fuel oil was supplied from Buildings 8 and 8A through underground fuel lines. Each furnace had a dedicated oil fuel line that came down from the overhead distribution line attached to an I-beam next to the furnace.

Electrical transformers and equipment were housed in two enclosed elevated mezzanines located in the bays between the walls and the first I-beam row inside the building.

1.4 PREVIOUS INVESTIGATIONS

Two previous investigations have documented environmental conditions at the Site and specifically in Building 2: the Comprehensive Environmental Baseline Survey (EBS) conducted by Tetra Tech EM, Inc. (TTEMI) (TTEMI, 2000) and the Site-Specific Environmental Baseline Survey (SSEBS) conducted by URS (URS, 2003b). These investigations have assessed asbestos containing materials (ACM), concrete, residual product, sewer wastewater and sediment, and surface and subsurface soil contamination in and around Building 2.

Fieldwork for this Screening Study was completed between September 8 and 11, 2003 to address the potential for contamination on the building siding (found both on the walls and roof of the building) and on the structural steel members. The sample location rationale and procedures are discussed below. Specific sampling techniques are discussed in the appropriate building materials sections.

Specific sample locations were not identified in the FSP since most areas of interest were inaccessible without an aerial lift or climbing gear, but an overall approach to select sample locations was discussed in detail during an on-site meeting with regulatory personnel on June 26, 2003. During the Screening Study, sampling personnel selected biased sample locations in the field by observing areas exhibiting visible oil staining or soot collection. It is believed that polychlorinated biphenyls (PCBs) would likely have been distributed as an aerosol while dioxins would most likely have been distributed in soot, so areas exhibiting contamination of both types were sampled. In particular, areas near the clamshell roof that would have formed eddies when the roof was open to ventilate the building were inspected for deposited soot. Since the building has not been used for process operations in over 30 years, weathered areas on the outside of the roof were not expected to have significant contamination remaining and a minimum number of sample locations were selected in these areas. During field sampling activities, oil stained areas were observed primarily on the lowest 15 feet of steel columns located near process equipment. Due to the doors installed at ground level for ventilation, the only transite siding within 10 feet of the floor was present in former office or washroom areas at the building corners. These corner areas exhibited very little, if any, contamination and were therefore not sampled. All sample locations for the Building 2 Siding and Structural Steel Screening Study are shown on **Figure 2-1**

Sample locations were accessed by URS personnel with a JLG model 80HX aerial boom lift. For sample locations on transite, a wipe sample was collected first and the co-located bulk transite sample was subsequently collected from within the area of the wipe sample. For structural steel sample locations, only a wipe sample was collected. All sample locations were marked with spray paint and photographed. All equipment used for sampling was decontaminated according to the guidelines established in Section 5.11 of the SSEBS FSP, Part I of the SAP (URS, 2002). Investigation derived waste (decontamination fluid) was containerized and managed according to Sections 5.10 and 8.0 of the SSEBS FSP.

Severn Trent Laboratories, Inc. (STL) was subcontracted by URS to perform all laboratory analyses for the samples collected during this Screening Study in accordance with the Quality Assurance Project Plan (QAPP) for the Building 2 Siding and Structural Steel Screening Study - Part II of the SAP (URS, 2003c). PCB analyses were performed in STL's St. Louis, Missouri laboratory and dioxin analyses were performed in their Sacramento, California laboratory. Quality Assurance (QA) samples were submitted to the USACE Waterways Experiment Station Environmental Laboratory, Omaha Branch (CEWES) in Omaha, Nebraska for analysis. EPA representatives also collected split samples of bulk transite siding for analysis.

2.1 SAMPLE IDENTIFICATION SYSTEM

All samples collected during the September 2003 sampling event were assigned a unique field sample ID that identified the samples as follows.

02 CR - ## – 0903 - X

Each element of the sample ID represents the following identifying information:

02: Two-character code representing the Investigation Area (Building 2)

CR: Two-character code representing the sample type (Building Screening Sample)

##: Two-digit sequential sample number.

01 – 03	Sample collected from siding in lower walls
04 – 07	Sample collected from siding in primary roof below the clamshell roof
08 – 12	Sample collected from siding in the clamshell roof
13 – 15	Discretionary sample collected from siding in an area of noticeable staining
16 – 20	Sample collected from structural steel member

0903: Month and Year sample was collected (September 2003).

X: Additional character designating the type of sample collected:

T	Bulk siding (transite) sample
W	Surface wipe sample

Building 2 Screening Sample ID Examples

02CR-06-0903-T	Bulk transite sample collected from the sloped roof below the clamshell roof from the 6th sample location in Building 2 during the September 2003 sampling event.
02CR-18-0903-W	Structural steel surface wipe sample collected from the 18th sample location in Building 2 during the September 2003 sampling event.

2.2 SIDING

The following modifications to the sampling protocol described in the FSP were required for the transite siding wipe samples collected during this Screening Study.

- Templates could not be utilized due to the corrugated shape of the siding and the accumulation of soot preventing adhesion. The sample area was measured with a metal tape and the area to be sampled was marked in the surrounding soot.
- No wipe blank samples were prepared or submitted to the laboratory.

The following modifications to the sampling protocol described in the FSP were required for the transite siding bulk samples collected during this Screening Study.

- No coring or sawing was performed in an effort to minimize asbestos release from the material. All samples were collected using a hammer and chisel or hand sledge.

2.2.1 Bulk Samples

Fifteen bulk material samples (02CR-01 through 02CR-15) were collected of the transite siding and roofing.

2.2.2 Wipe Samples

Fifteen wipe samples (02CR-01 through 02CR-15) were collected from interior and exterior transite siding and roofing surfaces.

2.3 STRUCTURAL STEEL

The following modifications to the sampling protocol described in the FSP were required for the structural steel wipe samples collected during this Screening Study.

- Templates could not be utilized due to the irregular shapes of the structural steel members and the accumulation of soot on the members that prevented adhesion. The sample area was measured with a metal tape and the area to be sampled was marked in the surrounding soot.
- No wipe blank samples were prepared or submitted to the laboratory.

2.3.1 Wipe Samples

Five wipe samples (02CR-16 through 02CR-20) were collected from the structural steel members of the building.

3.1 REGULATORY GUIDANCE

Both PCBs and dioxins are regulated compounds that require special handling and disposal methods when present above certain criteria. The "PCB Megarule" (EPA, 1998) defines a PCB-contaminated material as a solid with at least 50 mg/kg of PCBs or a non-porous surface with at least 10 ug/100 cm^2 (92.9 ug/ft^2) of PCBs. Dioxins are regulated by the Missouri Department of Natural Resources (MDNR), which specifies that a waste stream containing a total of one gram or more of 2,3,7,8-Tetrachlorodibenzo-p-dioxin (2,3,7,8-TCDD) must be classified and disposed of as a dioxin-contaminated waste.

3.2 RESULTS

Complete analytical results for all samples collected are presented in **Appendix A**. A summary of the results is included in **Table 3-1**, along with a description of each sample location. The toxicity equivalency quotient (TEQ) for dioxins was calculated by taking the sum of the products from multiplying each of the congener concentrations by the associated toxic equivalent factor, based on the World Health Organization meeting in 1997 (Van den Berg et al, 1998). U-coded (not detected) values were calculated at ½ of the detection limit value.

3.2.1 Siding

Bulk Sample Results

PCBs were not detected in any of the 15 bulk transite samples.

Dioxins were detected in all 15 of the bulk transite samples, with TEQ values ranging from 3.74 to 54.6 pg/g. The congener 2,3,7,8-TCDD was detected in all 15 of the bulk transite samples, with results ranging from 0.74 to 8.2 pg/g. In five of the samples, five dioxin congeners, including 2,3,7,8-TCDD, were rejected due to matrix spike/matrix spike duplicate (MS/MSD) recoveries outside evaluation criteria. However, due to the elevated levels of native dioxins/furans contamination initially present in the sample compared to the levels spiked into that sample, the calculated matrix spike recoveries are considered unreliable. The average values of the rejected data were reported by the laboratory at concentrations approximately 10 times the average values shown in **Table 3-1**

Wipe Sample Results

PCBs were not detected in any of the 15 siding wipe samples.

Dioxins were detected in all 15 of the siding wipe samples, with TEQ values ranging from 3.4 to 9,400 pg/ft^2. 2,3,7,8-TCDD was detected in 9 of the 15 samples, with concentrations ranging from 33 to 1,100 pg/ft^2. The siding wipe sample results exhibited large variations depending upon whether or not they were collected on the interior or exterior of the siding. Interior wipe samples had an average TEQ value of 2,880 pg/ft^2 while exterior wipe samples had an average TEQ of 7.27 pg/ft^2. Furthermore, all 9 of the 2,3,7,8-TCDD detections were from interior wipe samples while the 6 exterior wipe samples had no detections of 2,3,7,8-TCDD.

3.2.2 Structural Steel

Wipe Sample Results

PCBs were detected in 3 of the 5 structural steel wipe samples, with Total PCB values ranging from 2.5 to 46 ug/ft^2. All 3 of the PCB detections were from samples less than 15 feet above the floor, with the highest concentration found in the sample closest to the floor (02CR-20-0903-W, approximately 4 feet above the floor).

Dioxins were detected in all 5 of the structural steel wipe samples, with TEQ values ranging from 741 to 15,500 pg/ft^2. 2,3,7,8-TCDD was detected in all 5 of the structural steel wipe samples, with concentrations ranging from 170 to 3,600 pg/ft^2. Like the PCB results, the dioxin results were significantly higher in the samples taken within 15 feet of the floor than in the samples taken at higher elevations. Samples taken within 15 feet of the floor had and average TEQ value of 10,400 pg/ft^2 while those taken higher up had an average TEQ value of 1,050 pg/ft^2.

Tetra Tech EM, Inc. (TTEMI). 2000. *Final Environmental Baseline Survey Report, St. Louis Army Ammunition Plant, St. Louis, Missouri.* 28 December.

URS Group, Inc. (URS). 2002. *Sampling and Analysis Plan Site-Specific Environmental Baseline Survey, St. Louis Army Ammunition Plant, St. Louis, Missouri.* July.

URS Group, Inc. (URS). 2003a. *Field Sampling Plan for the Building 2 Siding and Structural Steel Screening Study, St. Louis Army Ammunition Plant, St. Louis, Missouri.* August.

URS Group, Inc. (URS). 2003b. *Site-Specific Environmental Baseline Survey, St. Louis Army Ammunition Plant, St. Louis, Missouri.* August.

URS Group, Inc. (URS). 2003c. *Quality Assurance Project Plan for the Building 2 Siding and Structural Steel Screening Study, St. Louis Army Ammunition Plant, St. Louis, Missouri.* August.

U.S. Army Toxic and Hazardous Materials Agency (USATHMA). 1979. *Installation Assessment of St. Louis Army Ammunition Plant.* Report No. 153. December.

U.S. Environmental Protection Agency (EPA). 1998. 40 CFR Parts 750 and 761. *Disposal of Polychlorinated Biphenyls (PCBs); Final Rule.* 29 June.

Van den Berg et al. 1998. 1997 World Health Organization Meeting.

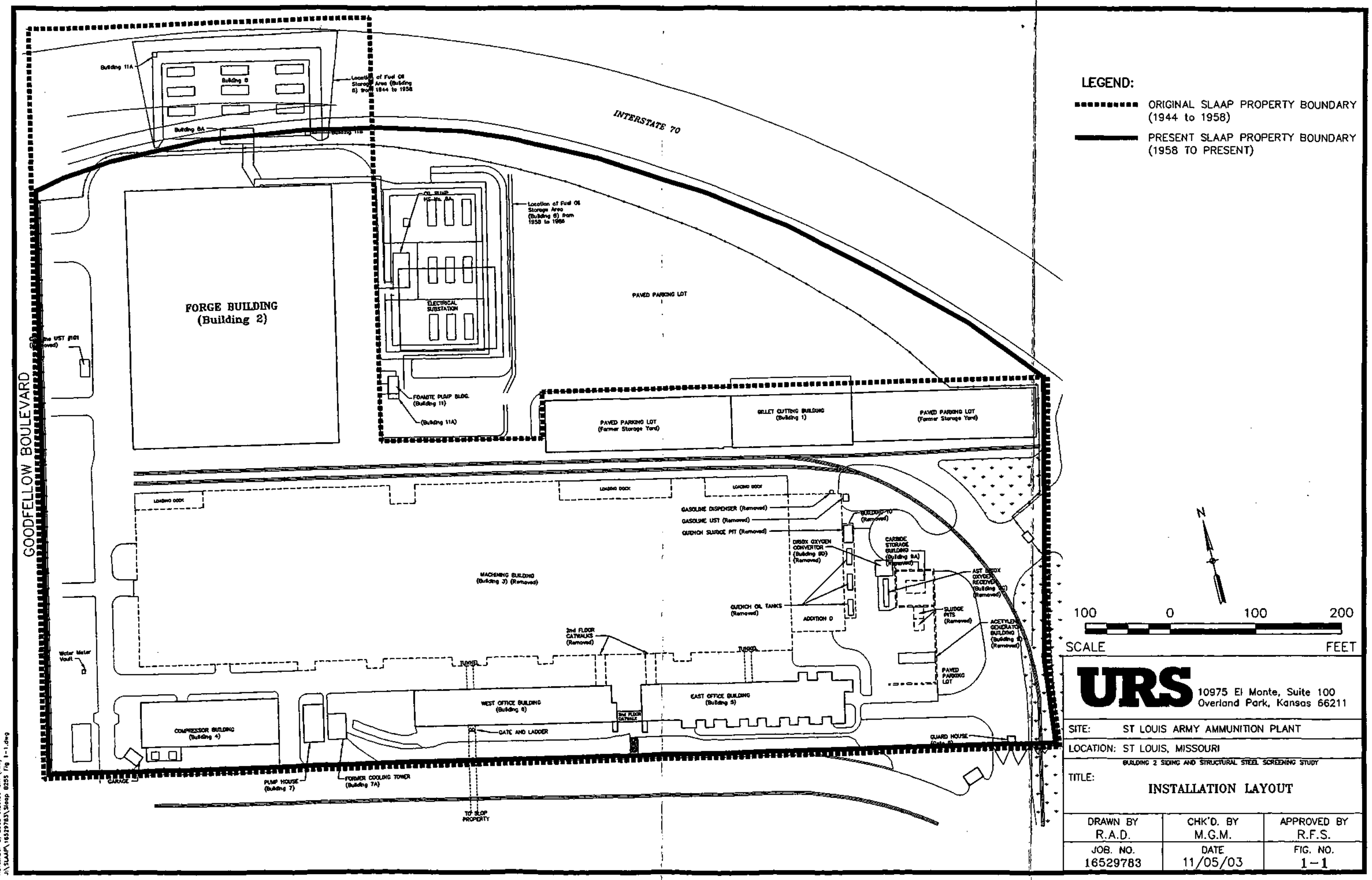
Table 1-1. Summary of Building 2 Physical Features

Building Characteristics	
Building Name	Forge Building
Area	First Floor: 73,095 ft² Second Floor (Switching Room): 792 ft² Third Floor (Machine Balconies): 2,964 ft² Fourth Floor (Catwalks): 1,803 ft² Fifth Floor (Locker Rooms): 1,701 ft²
Style	Five stories
Construction Materials	Steel frame and roof trusses on reinforced concrete piers, corrugated asbestos siding, and an asbestos-covered metal roof.
Construction Date	1944
Heat Source	High pressure steam (190 and 40 lb/sq inch) was supplied from the basement of Building 3 to Building 2 via a 6-inch line that split into two headers. The headers fed at least 36 unit heaters. Steam was also used to preheat the oil being fed to the rotary furnaces. Steam condensate was pumped back to the basement of Building 3 recirculation.
Historical Use	
Occupants/Lessees	1944 to 1983: SLAAP (105-mm Howitzer shell production)
Operational Periods	1944 to 1945: 105-mm Howitzer shell production 1952 to 1954: 105-mm Howitzer shell production 1966 to 1969: 105-mm Howitzer shell production
Historical Processes	
Process Description	The building contained 10 gas- and oil-fired rotary furnaces for slug heating and forging. Cut steel billets from Building 1 were forged into hollow cylinders. After forging, the billets were cooled by water spraying and quenching. Various hydraulic systems were also used in the production process.
Process Machinery	Rotary furnaces, piercing presses, sizing and de-scaling units, hydraulic draw benches, conveyors, accumulators, air hammers, cooling tanks, oil heaters, cranes, metal grinders, transformers, and air compressor motors and cylinders.
Process Utilities	Electricity, water, fuel oil, compressed air, steam, and natural gas.
Hazardous Material Information	
Possible Hazardous Material Used	Hydraulic and fuel oils, solvents (toluene), asbestos, LBP, quench water, and machine lubricant oils
Hazardous Material Storage and Usage Areas	First Floor: A fuel oil distribution system, hydraulic oil systems, and cooling tanks Second Floor: Two transformers and switches Outside: A 10,000-gallon regular (leaded) gasoline UST and dispenser (abandoned and filled with sand in 1959; removed in 1992)
Hazardous Material Off-Loading Areas	The UST was filled using a fill port on top of the tank. Fuel oil was off-loaded into pipes contained in loading pits. These pits were located north of Building 2 from 1944 to 1958 and east of the building from 1958 to 1969.

Table 3-1
Results of Building 2 Siding and Structural Steel Screening Study
St. Louis Army Ammunition Plant, St. Louis, Missouri

Sample ID	Sample Type	Sample Location Description	Total PCB		Dioxin TEQ		2,3,7,8-TCDD	
			Result	Units	Result	Units	Result	Units
02CR-01-0903-T	Transite Siding	Interior east wall above steel doors approximately 20' above the floor between column lines 13 & 14.	U	MG/KG	3.74	PG/G	1.2	PG/G
02CR-01-0903-W	Surface Wipe		U	UG/FT2	458J	PG/FT2	100	PG/FT2
02CR-02-0903-T	Transite Siding	Interior south wall above steel doors approximately 15' above the floor between column lines G & H.	U	MG/KG	6.8	PG/G	2.2	PG/G
02CR-02-0903-W	Surface Wipe		U	UG/FT2	2,030J	PG/FT2	530	PG/FT2
02CR-03-0903-T	Transite Siding	Exterior west wall below gutter in stained area approximately 22' above the ground between column lines 10 & 11.	U	MG/KG	4.6	PG/G	1.1	PG/G
02CR-03-0903-W	Surface Wipe		U	UG/FT2	7.67	PG/FT2	U(3.3)	PG/FT2
02CR-04-0903-T	Transite Siding	Interior of upper sloped roof approximately 50' above the floor between column lines D & E and 14 & 15.	U	MG/KG	R		R	
02CR-04-0903-W	Surface Wipe		U	UG/FT2	1,510J	PG/FT2	220	PG/FT2
02CR-05-0903-T	Transite Siding	Interior of lower sloped roof approximately 32' above the floor between column lines B & C and 14 & 15.	U	MG/KG	R		R	
02CR-05-0903-W	Surface Wipe		U	UG/FT2	737J	PG/FT2	100	PG/FT2
02CR-06-0903-T	Transite Siding	Interior of lower sloped roof approximately 28' above the floor between column lines Q & R and 13 & 14.	U	MG/KG	12.6	PG/G	1.5	PG/G
02CR-06-0903-W	Surface Wipe		U	UG/FT2	192J	PG/FT2	33	PG/FT2
02CR-07-0903-T	Transite Siding	Exterior of upper sloped roof along southern edge under lower clamshell overhang approx. 60' above the ground between column lines E & F and 1 & 2.	U	MG/KG	25.7	PG/G	8.2	PG/G
02CR-07-0903-W	Surface Wipe		U	UG/FT2	8.2J	PG/FT2	U(5.7)	PG/FT2
02CR-08-0903-T	Transite Siding	Interior of clamshell roof approximately 70' above the floor between column lines H & J and 5 & 6.	U	MG/KG	R		R	
02CR-08-0903-W	Surface Wipe		U	UG/FT2	9,400	PG/FT2	1,100	PG/FT2
02CR-09-0903-T	Transite Siding	Interior of clamshell roof approximately 75' above the floor between column lines K & L and 10 & 11.	U	MG/KG	R		R	
02CR-09-0903-W	Surface Wipe		U	UG/FT2	4680J	PG/FT2	620	PG/FT2
02CR-10-0903-T	Transite Siding	Interior of clamshell roof approximately 72' above the floor between column lines G & H and 14 & 15.	U	MG/KG	R		R	
02CR-10-0903-W	Surface Wipe		U	UG/FT2	4,010	PG/FT2	630	PG/FT2
02CR-11-0903-T	Transite Siding	Interior of clamshell roof approximately 80' above the floor between column lines K & L and 14 & 15.	U	MG/KG	48.1	PG/G	4.3	PG/G
02CR-11-0903-W	Surface Wipe		U	UG/FT2	2,900J	PG/FT2	290	PG/FT2
02CR-12-0903-T	Transite Siding	Exterior of clamshell roof along southern edge under clamshell overhang approx. 80' above the ground between column lines K & L and 1 & 2.	U	MG/KG	54.6	PG/G	5.1	PG/G
02CR-12-0903-W	Surface Wipe		U	UG/FT2	5.63J	PG/FT2	U(3.0)	PG/FT2
02CR-13-0903-T	Transite Siding	Exterior of north wall in stained area below clamshell center gutter approximately 65' above the ground between column lines H & J.	U	MG/KG	6.2	PG/G	1.4	PG/G
02CR-13-0903-W	Surface Wipe		U	UG/FT2	13.7J	PG/FT2	U(6.1)	PG/FT2
02CR-14-0903-T	Transite Siding	Exterior of south wall in stained area below clamshell center gutter approximately 70' above the ground between column lines H & J.	U	MG/KG	13.4	PG/G	2.6	PG/G
02CR-14-0903-W	Surface Wipe		U	UG/FT2	3.4J	PG/FT2	U(1.1)	PG/FT2
02CR-15-0903-T	Transite Siding	Exterior of east wall below end of gutter in stained area approximately 24' above the ground between column lines 9 & 10.	U	MG/KG	6.5	PG/G	0.74 J	PG/G
02CR-15-0903-W	Surface Wipe		U	UG/FT2	5.04	PG/FT2	U(1.6)	PG/FT2
02CR-16-0903-W	Surface Wipe	Clamshell roof support Structural Steel (SS) girder approximately 80' above the floor along column line L between column lines 14 & 15.	U	UG/FT2	1,370J	PG/FT2	250	PG/FT2
02CR-17-0903-W	Surface Wipe	North side of SS column F-11 approximately 45' above the floor.	U	UG/FT2	741J	PG/FT2	170	PG/FT2
02CR-18-0903-W	Surface Wipe	North side of SS column L-13 approximately 12' above the floor.	6.0	UG/FT2	8,560	PG/FT2	3,000	PG/FT2
02CR-19-0903-W	Surface Wipe	North side of SS column L-2 approximately 12' above the floor.	2.5	UG/FT2	7,250J	PG/FT2	3,000	PG/FT2
02CR-20-0903-W	Surface Wipe	North side of SS column P-7 approximately 4' above the floor.	46	UG/FT2	15,500J	PG/FT2	3,600	PG/FT2

Notes:
"U" indicates value below quantitation limits of 0.034 MG/KG or 1 UG/FT2 PCBs for bulk and wipe samples, respectively.
"U(x)" indicates value below quantitation limit of x PG/FT2 of 2,3,7,8 TCDD
"J" indicates estimated result in one or more of the congener values
Units: MG/KG = milligrams/kilogram, PG/G = picograms/gram, UG/FT2 = micrograms/square foot, PG/FT2 = picograms/square foot

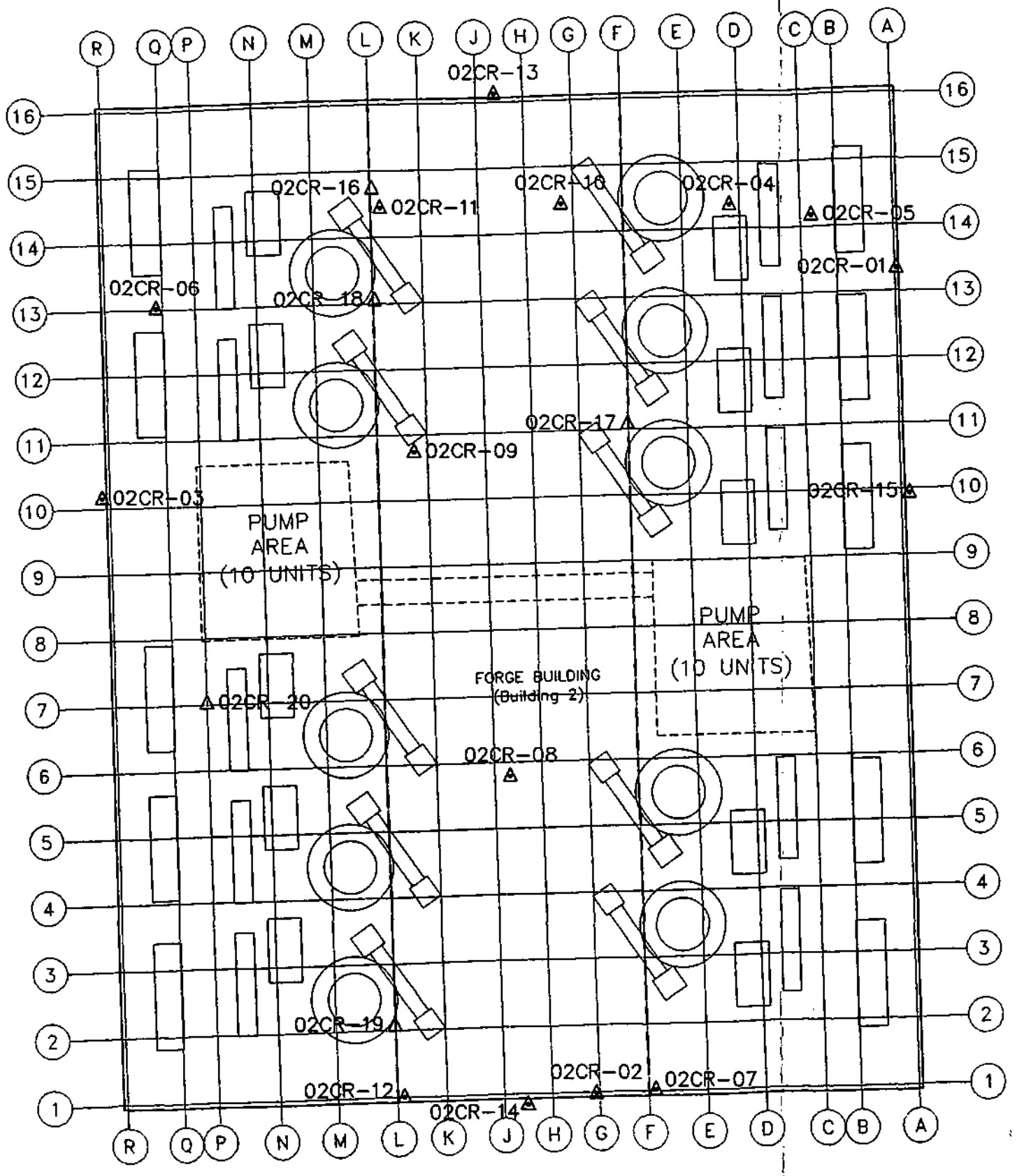


URS
10975 El Monte, Suite 100
Overland Park, Kansas 66211

SITE:	ST LOUIS ARMY AMMUNITION PLANT
LOCATION:	ST LOUIS, MISSOURI
	BUILDING 2 SIDING AND STRUCTURAL STEEL SCREENING STUDY
TITLE:	INSTALLATION LAYOUT

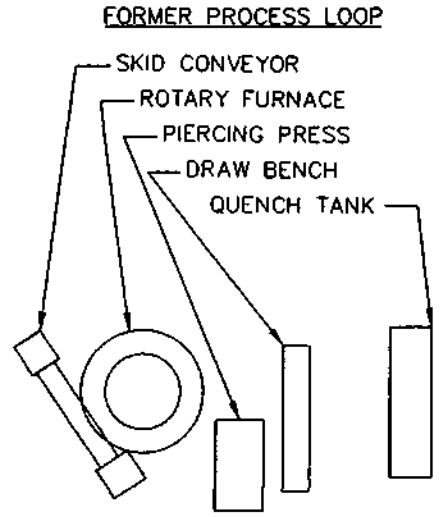
DRAWN BY	CHK'D. BY	APPROVED BY
R.A.D.	M.G.M.	R.F.S.
JOB. NO.	DATE	FIG. NO.
16529783	11/05/03	1-1

November 6, 2003 9:29:56 am (rad)
J:\SLAAP\16529783\Sksp 8255 Fig 1-1.dwg



LEGEND:

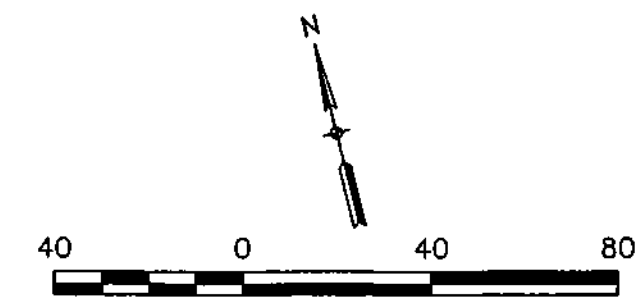
FORMER PROCESS LOOP



DENOTES EXTENT OF CLAMSHELL ROOF

△ SURFACE WIPE SAMPLE

• BULK TRANSITE SAMPLE



SCALE FEET

URS 10975 El Monte, Suite 100 Overland Park, Kansas 66211

SITE: ST LOUIS ARMY AMMUNITION PLANT

LOCATION: ST LOUIS, MISSOURI

BUILDING 2 SIDING AND STRUCTURAL STEEL SCREENING STUDY

TITLE: **SAMPLING LOCATIONS**

DRAWN BY	CHK'D. BY	APPROVED BY
R.A.D.	M.G.M.	R.F.S.
JOB. NO.	DATE	FIG. NO.
16529783	11/05/03	2-1

November 6, 2003 9:31:10 am (rad)
J:\SLAAP\16529783\Step 8255 Fig 2-1.dwg

Table A-1
Analytical Results for Building 2 Bulk Transite Sampling
St. Louis Army Ammunition Plant, St. Louis, Missouri

	02CR-01-0903-T			02CR-02-0903-T			02CR-03-0903-T			02CR-04-0903-T			02CR-05-0903-T			02CR-06-0903-T			02CR-07-0903-T		
	Result	Q	QL	Result	Q	QL	Result	Q	QL	Result	Q	QL	Result	Q	QL	Result	Q	QL	Result	Q	QL
DIOXINS (PG/G)																					
1,2,3,4,6,7,8,9-OCDD	71			47			120				R			R		53			120		
1,2,3,4,6,7,8,9-OCDF		U	(2.7)		U	(2.2)	10			21			13			5.3	J		7.9	J	
1,2,3,4,6,7,8-HpCDD	21			17			31				R			R		53			59		
1,2,3,4,6,7,8-HpCDF	3.7	J		5.1	J		11			49	J		27	J		15			14		
1,2,3,4,7,8,9-HpCDF		U	(0.3)		U	(0.25)		U	(0.67)		U	(2.3)		U	(1.2)		U	(0.73)		U	(0.7)
1,2,3,4,7,8-HxCDD		U	(0.46)		U	(0.65)		U	(0.78)	12				U	(2.1)		U	(1.5)	2.7	J	
1,2,3,4,7,8-HxCDF		U	(0.96)		U	(1.1)		U	(2.4)	7			6			4.2	J		2.8	J	
1,2,3,6,7,8-HxCDD	6.8			5	J		8.2				R			R		27			21		
1,2,3,6,7,8-HxCDF		U	(0.8)		U	(1.1)		U	(1.7)	6.4			4.6	J		2.6	J			U	(2.4)
1,2,3,7,8,9-HxCDD		U	(2.4)	2.4	J		3.5	J			R			R		12			9.6		
1,2,3,7,8,9-HxCDF		U	(0.087)		U	(0.11)		U	(0.1)		U	(0.52)		U	(0.65)		U	(0.16)		U	(0.1)
1,2,3,7,8-PeCDD		U	(2.1)	3.1	J			U	(2.2)	41	J		6.8	J		5	J		11		
1,2,3,7,8-PeCDF		U	(0.65)		U	(0.82)		U	(1.1)	3.9	J			U	(1.9)		U	(1.3)		U	(2.4)
2,3,4,6,7,8-HxCDF		U	(0.72)		U	(0.78)		U	(1.1)	5.4			4.4	J			U	(2.3)		U	(1.6)
2,3,4,7,8-PeCDF		U	(0.82)		U	(0.95)		U	(1.3)	5.7			2.9	J			U	(2.1)	3.2	J	
2,3,7,8-TCDD	1.2			2.2			1.1				R			R		1.5			8.2		
2,3,7,8-TCDF	0.65	J		0.8	J		0.87	J		2			1.1			0.8	J		2.5		
Dioxin TEQ*	3.743335			6.79206			4.54985				R			R		12.60498			25.67129		
PCBs (MG/KG)																					
PCB-1016		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)
PCB-1221		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)
PCB-1232		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)
PCB-1242		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)
PCB-1248		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)
PCB-1254		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)
PCB-1260		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)
Total PCB*		U			U			U			U			U			U			U	

Notes:
* = Value calculated by URS
Q = Qualifier
QL = Quantitation Limit

Qualifier Notes:
U = Not detected at the given QL
J = Concentration is an estimated quantity
R = Data unusable

Table A-1
Analytical Results for Building 2 Bulk Transite Sampling
St. Louis Army Ammunition Plant, St. Louis, Missouri

	02CR-08-0903-T			02CR-09-0903-T			02CR-10-0903-T			02CR-11-0903-T			02CR-12-0903-T			02CR-13-0903-T			02CR-14-0903-T		
	Result	Q	QL	Result	Q	QL	Result	Q	QL	Result	Q	QL	Result	Q	QL	Result	Q	QL	Result	Q	QL
DIOXINS (PG/G)																					
1,2,3,4,6,7,8,9-OCDD		R			R			R		130			420			71			120		
1,2,3,4,6,7,8,9-OCDF	87			16			33			13			17				U	(3.5)	6.4	J	
1,2,3,4,6,7,8-HpCDD		R			R			R		160			310			29			49		
1,2,3,4,6,7,8-HpCDF	200	J		38	J		89	J		30			37			7.2			12		
1,2,3,4,7,8,9-HpCDF	9.7				U	(1.8)	4.4	J			U	(1.2)		U	(1.6)		U	(0.24)		U	(0.47)
1,2,3,4,7,8-HxCDD	100			9.3			24			7.5			13				U	(0.85)		U	(2.5)
1,2,3,4,7,8-HxCDF	33			5.2			18			3.7	J		4.8	J			U	(1.3)		U	(2.3)
1,2,3,6,7,8-HxCDD		R			R			R		100			110			8.5			19		
1,2,3,6,7,8-HxCDF	27			4.1	J		13			3.2	J		3.6	J			U	(0.86)		U	(1.7)
1,2,3,7,8,9-HxCDD		R			R			R		45			50			3.7	J		5.6		
1,2,3,7,8,9-HxCDF		U	(1.6)		U	(0.88)		U	(0.76)		U	(0.3)		U	(0.3)		U	(0.098)		U	(0.11)
1,2,3,7,8-PeCDD	330	J		33	J			J		25			26			2.9	J		7		
1,2,3,7,8-PeCDF	16				U	(2.4)	7.8				U	(1.5)		U	(1.9)		U	(0.44)		U	(1.2)
2,3,4,6,7,8-HxCDF	31			4.3	J		9.5			2.7	J		2.9	J			U	(0.48)		U	(0.81)
2,3,4,7,8-PeCDF	37			3.9	J		12				U	(2.2)	2.7	J			U	(0.44)		U	(1.1)
2,3,7,8-TCDD		R			R			R		4.3			5.1			1.4			2.6		
2,3,7,8-TCDF	15			1.5			5.6			0.89	J		1.4				U	(0.37)	0.55	J	
Dioxin TEQ*		R			R			R		48.1218			54.6042			6.209375			13.41599		
PCBs (MG/KG)																					
PCB-1016		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)
PCB-1221		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)
PCB-1232		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)
PCB-1242		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)
PCB-1248		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)
PCB-1254		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)
PCB-1260		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)		U	(0.034)
Total PCB*		U			U			U			U			U			U			U	

Notes:
* = Value calculated by URS
Q = Qualifier
QL = Quantitation Limit

Qualifier Notes:
U = Not detected at the given QL
J = Concentration is an estimated quantity
R = Data unusable

Table A-1
Analytical Results for Building 2 Bulk Transite Sampling
St. Louis Army Ammunition Plant, St. Louis, Missouri

	02CR-T5-0903-T		
	Result	Q	QL
DIOXINS (PG/G)			
1,2,3,4,6,7,8,9-OCDD	250		
1,2,3,4,6,7,8,9-OCDF	22		
1,2,3,4,6,7,8-HpCDD	74		
1,2,3,4,6,7,8-HpCDF	25		
1,2,3,4,7,8,9-HpCDF		U	(1.6)
1,2,3,4,7,8-HxCDD		U	(1.1)
1,2,3,4,7,8-HxCDF	4.6	J	
1,2,3,6,7,8-HxCDD	14		
1,2,3,6,7,8-HxCDF	3.2	J	
1,2,3,7,8,9-HxCDD	6.2		
1,2,3,7,8,9-HxCDF		U	(0.15)
1,2,3,7,8-PeCDD		U	(1.8)
1,2,3,7,8-PeCDF		U	(2)
2,3,4,6,7,8-HxCDF	2.9	J	
2,3,4,7,8-PeCDF		U	(2.2)
2,3,7,8-TCDD	0.74	J	
2,3,7,8-TCDF	1.2		
Dioxin TEQ*	6.5377		
PCBs (MG/KG)			
PCB-1016		U	(0.034)
PCB-1221		U	(0.034)
PCB-1232		U	(0.034)
PCB-1242		U	(0.034)
PCB-1248		U	(0.034)
PCB-1254		U	(0.034)
PCB-1260		U	(0.034)
Total PCB*		U	

Notes:
* = Value calculated by URS
Q = Qualifier
QL = Quantitation Limit

Qualifier Notes:
U = Not detected at the given QL
J = Concentration is an estimated quantity
R = Data unusable

Table A-2
Analytical Results for Building 2 Wipe Sampling
St. Louis Army Ammunition Plant, St. Louis, Missouri

	02CR-01-0903-W			02CR-02-0903-W			02CR-03-0903-W			02CR-04-0903-W			02CR-05-0903-W			02CR-06-0903-W			02CR-07-0903-W		
	Result	Q	QL	Result	Q	QL	Result	Q	QL	Result	Q	QL	Result	Q	QL	Result	Q	QL	Result	Q	QL
DIOXINS (PG/FT2)																					
1,2,3,4,6,7,8,9-OCDD	50000			41000			300			6500			5000			2100			180	J	
1,2,3,4,6,7,8,9-OCDF	910			1400				U	(19)	780			1800				U	(71)		U	(10)
1,2,3,4,6,7,8-HpCDD	5200			7700				U	(48)	4100			2300			570				U	(40)
1,2,3,4,6,7,8-HpCDF	760			1300				U	(15)	680			1200			130				U	(12)
1,2,3,4,7,8,9-HpCDF	62	J		60	J			U	(1.8)		U	(41)	70	J			U	(9.2)		U	(2.1)
1,2,3,4,7,8-HxCDD		U	(36)	230				U	(3.1)	190			72	J			U	(18)		U	(1.7)
1,2,3,4,7,8-HxCDF	80	J		180				U	(5)	140			170				U	(31)		U	(1.6)
1,2,3,6,7,8-HxCDD	630			1800				U	(7.1)	2100			1100			290				U	(8)
1,2,3,6,7,8-HxCDF	63	J		100				U	(2.6)	99	J		120				U	(28)		U	(1.6)
1,2,3,7,8,9-HxCDD	230			990				U	(6.4)	1200			680			110				U	(7)
1,2,3,7,8,9-HxCDF		U	(13)		U	(6.2)		U	(1.6)		U	(10)		U	(13)		U	(2.3)		U	(1.7)
1,2,3,7,8-PeCDD	150			990				U	(6.1)	820			310			95	J			U	(5.8)
1,2,3,7,8-PeCDF		U	(31)	69	J			U	(4.6)		U	(43)	59	J			U	(16)		U	(3)
2,3,4,6,7,8-HxCDF	71	J		98	J			U	(3.8)	76	J		150				U	(34)		U	(1.7)
2,3,4,7,8-PeCDF	60	J		130				U	(3.3)	77	J		110				U	(38)		U	(3)
2,3,7,8-TCDD	100			530				U	(3.3)	220			100			33				U	(5.7)
2,3,7,8-TCDF	24			78				U	(4)	37			27			10	J			U	(3.4)
Dioxin TEQ*	458.336			2031.2			7.67495			1513.008			736.88			191.8245			8.199		
PCBs (UG/FT2)																					
PCB-1016		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)
PCB-1221		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)
PCB-1232		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)
PCB-1242		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)
PCB-1248		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)
PCB-1254		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)
PCB-1260		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)
Total PCB*		U			U			U			U			U			U			U	

Notes:
* = Value calculated by URS
Q = Qualifier
QL = Quantitation Limit

Qualifier Notes:
U = Not detected at the given QL
J = Concentration is an estimated quantity
R = Data unusable

Table A-2
Analytical Results for Building 2 Wipe Sampling
St. Louis Army Ammunition Plant, St. Louis, Missouri

	02CR-08-0903-W			02CR-09-0903-W			02CR-10-0903-W			02CR-11-0903-W			02CR-12-0903-W			02CR-13-0903-W			02CR-14-0903-W		
	Result	Q	QL	Result	Q	QL	Result	Q	QL	Result	Q	QL	Result	Q	QL	Result	Q	QL	Result	Q	QL
DIOXINS (PG/FT2)																					
1,2,3,4,6,7,8,9-OCDD	45000			13000			20000			8200			160	J		600			170	J	
1,2,3,4,6,7,8,9-OCDF	2200			860			1700			1100				U	(9.5)		U	(26)		U	(8.6)
1,2,3,4,6,7,8-HpCDD	25000			9500			8800			12000				U	(33)	89	J			U	(22)
1,2,3,4,6,7,8-HpCDF	2700			1300			1700			2200				U	(8.8)		U	(24)		U	(6.1)
1,2,3,4,7,8,9-HpCDF	180			73	J		120			100				U	(1.3)		U	(1.6)		U	(1.2)
1,2,3,4,7,8-HxCDD	1400			680			530			420				U	(1.6)		U	(4)		U	(1.7)
1,2,3,4,7,8-HxCDF	640			300			350			210				U	(2.4)		U	(6.2)		U	(1.7)
1,2,3,6,7,8-HxCDD	11000			5700			4500			5900				U	(7.9)		U	(17)		U	(3.1)
1,2,3,6,7,8-HxCDF	390			210			250			200				U	(1.3)		U	(3.1)		U	(1.1)
1,2,3,7,8,9-HxCDD	7200			3100			2300			2700				U	(4.1)		U	(11)		U	(2.5)
1,2,3,7,8,9-HxCDF		U	(26)		U	(22)		U	(18)		U	(25)		U	(1.4)		U	(1.3)		U	(1.2)
1,2,3,7,8-PeCDD	5700			2800			2300			1400				U	(4.2)		U	(11)		U	(2.6)
1,2,3,7,8-PeCDF	200			120			190			79	J			U	(2.3)		U	(4.6)		U	(2.2)
2,3,4,6,7,8-HxCDF	370			190			170			210				U	(1.4)		U	(3.9)		U	(1.2)
2,3,4,7,8-PeCDF	380			230			270			170				U	(2.4)		U	(5.4)		U	(2.2)
2,3,7,8-TCDD	1100			620			630			290				U	(3)		U	(6.1)		U	(1.1)
2,3,7,8-TCDF	160			110			140			92				U	(2.7)		U	(6.1)		U	(3.1)
Dioxin TEQ*	9400.82			4681.216			4007.77			2897.33			5.629475			13.7243			3.39893		
PCBs (UG/FT2)																					
PCB-1016		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)
PCB-1221		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)
PCB-1232		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)
PCB-1242		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)
PCB-1248		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)
PCB-1254		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)
PCB-1260		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)
Total PCB*		U			U			U			U			U			U			U	

Notes:
* = Value calculated by URS
Q = Qualifier
QL = Quantitation Limit

Qualifier Notes:
U = Not detected at the given QL
J = Concentration is an estimated quantity
R = Data unusable

Table A-2
Analytical Results for Building 2 Wipe Sampling
St. Louis Army Ammunition Plant, St. Louis, Missouri

	02CR-15-0903-W			02CR-16-0903-W			02CR-17-0903-W			02CR-18-0903-W			02CR-19-0903-W			02CR-20-0903-W		
	Result	Q	QL	Result	Q	QL	Result	Q	QL	Result	Q	QL	Result	Q	QL	Result	Q	QL
DIOXINS (PG/FT2)																		
1,2,3,4,6,7,8,9-OCDD	200	J		6600			7400			190000			120000			600000		
1,2,3,4,6,7,8,9-OCDF		U	(13)	480			140	J		3100			2300			150000		
1,2,3,4,6,7,8-HpCDD		U	(32)	5100			2200			28000			16000			190000		
1,2,3,4,6,7,8-HpCDF		U	(10)	1100			210			3300			2300			160000		
1,2,3,4,7,8,9-HpCDF		U	(1.8)	51	J			U	(11)	140			93	J		3300		
1,2,3,4,7,8-HxCDD		U	(2.1)	130			81	J		620			430			1300		
1,2,3,4,7,8-HxCDF		U	(2.5)	130				U	(35)	240			200			2500		
1,2,3,6,7,8-HxCDD		U	(4)	2600			880			6400			3400			31000		
1,2,3,6,7,8-HxCDF		U	(1.8)	120				U	(28)	220			150			1200		
1,2,3,7,8,9-HxCDD		U	(3.3)	1300			420			3600			2200			11000		
1,2,3,7,8,9-HxCDF		U	(1.6)		U	(22)		U	(2.3)		U	(15)		U	(11)		U	(160)
1,2,3,7,8-PeCDD		U	(4.4)	520			390			3900			3200			2900		
1,2,3,7,8-PeCDF		U	(2.7)	59	J			U	(21)	190			200			640	J	
2,3,4,6,7,8-HxCDF		U	(1.6)	160				U	(28)	210			130			1500		
2,3,4,7,8-PeCDF		U	(2.7)	160				U	(43)	330			330			800	J	
2,3,7,8-TCDD		U	(1.6)	250			170			3000			3000			3600		
2,3,7,8-TCDF		U	(4.3)	71			23			240			280			810		
Dioxin TEQ*	5.04215			1368.368			741.249			8561.96			7250.71			15479		
PCBs (UG/FT2)																		
PCB-1016		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)
PCB-1221		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)
PCB-1232		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)
PCB-1242		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)
PCB-1248		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)		U	(1)
PCB-1254		U	(1)		U	(1)		U	(1)	1.8			1.3			22		
PCB-1260		U	(1)		U	(1)		U	(1)	4.2			1.2			24		
Total PCB*		U			U			U		6			2.5			46		

Notes:
* = Value calculated by URS
Q = Qualifier
QL = Quantitation Limit

Qualifier Notes:
U = Not detected at the given QL
J = Concentration is an estimated quantity
R = Data unusable

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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

Sample Number: 02CR-01-0903-T Personnel: MGM/MRP/TJS

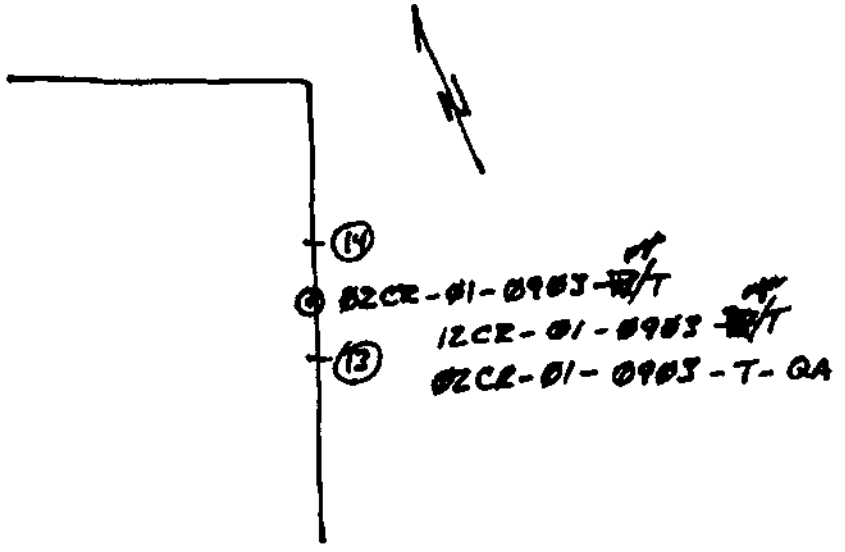
Location: BLDG 2 / 02CR-01 QA/QC Sample (Circle One): (Yes) No

Sample Media: BULK TRANSITE Method: CORE SAMPLER

Collection Date/Time: YR: 2003 MO: 09 DAY: 10 Time: 0900

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-01-0903-T	*QAQC Type: none*		
PCB	SW846-8082 (STL)	1-1 L jar	Cool
DIOXIN	SW846-8290 (STL)	1-1 L jar	Cool
Field ID: 02CR-01-0903-T-QA	*QAQC Type: DUPLICATE-QA*		
PCB	SW846-8082 (CEWES)	1-1 L jar	Cool
DIOXIN	SW846-8290 (CEWES)	1-1 L jar	Cool

COMMENTS/SKETCH/OBSERVATIONS



Sample collected from inside east wall of building above steel doors between column lines 13 and 14.

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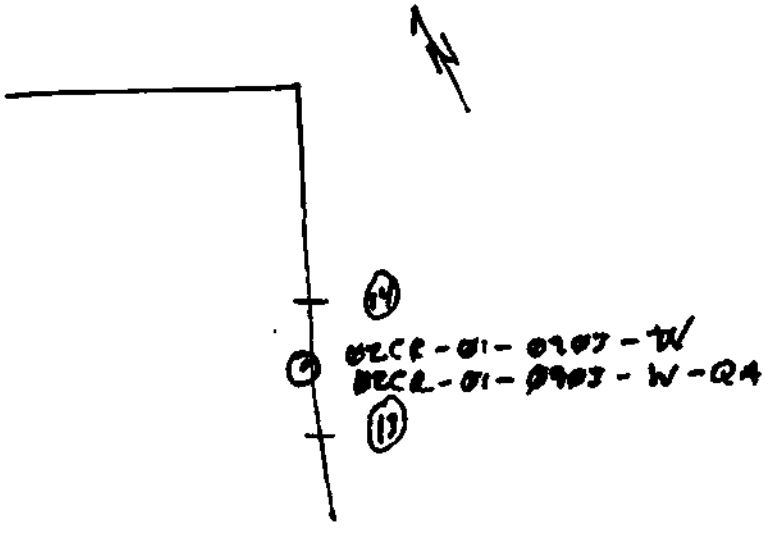
SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study
Job Number 16529783
Sample Number: 02CR-01-0903-W
Personnel: MGM/MRP/TJS
Location: BLDG 2 / 02CR-01
QA/QC Sample (Circle One): (Yes) No
Sample Media: SURFACE WIPE
Method: SURFACE WIPE
Collection Date/Time: YR: 2003 MO: 09 DAY: 10 Time: 0900

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-01-0903-W	*QAQC Type: none*		
PCB	SW846-8082 (STL)	1-Poly bottle	Cool
DIOXIN	SW846-8290 (STL)	1-Poly bottle	Cool
Field ID: 02CR-01-0903-W-QA	*QAQC Type: DUPLICATE-QA*		
PCB	SW846-8082 (CEWES)	1-Poly bottle	Cool
DIOXIN	SW846-8290 (CEWES)	1-Poly bottle	Cool

COMMENTS/SKETCH/OBSERVATIONS

Sample collected from inside east wall above steel door between column line 13 and 14.



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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

Sample Number: 02CR-02-0903-T Personnel: MGM/MRT/TJS

Location: BLDG 2 / 02CR-02 QA/QC Sample (Circle One): (Yes) No

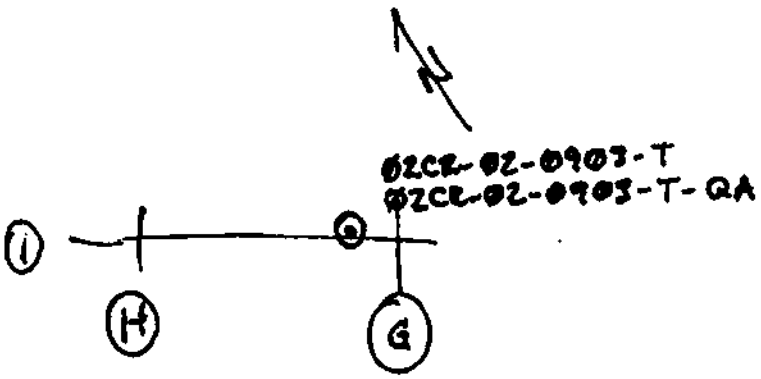
Sample Media: BULK TRANSITE Method: CORE SAMPLER

Collection Date/Time: YR: 2003 MO: 09 DAY: 11 Time: 1100

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-02-0903-T	*QAQC Type: none*		
PCB	SW846-8082 (STL)	1-1 L jar	Cool
DIOXIN	SW846-8290 (STL)	1-1 L jar	Cool
Field ID: 02CR-02-0903-T-QA	*QAQC Type: DUPLICATE-QA*		
DIOXIN	SW846-8290 (CEWES)	1-1 L jar	Cool

COMMENTS/SKETCH/OBSERVATIONS

Sample collected from interior of south wall above steel doors between column lines G + H.



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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

Sample Number: 02CR-02-0903-W Personnel: MGM/MRP/TJS

Location: BLDG 2 / 02CR-02 QA/QC Sample (Circle One): (Yes) No

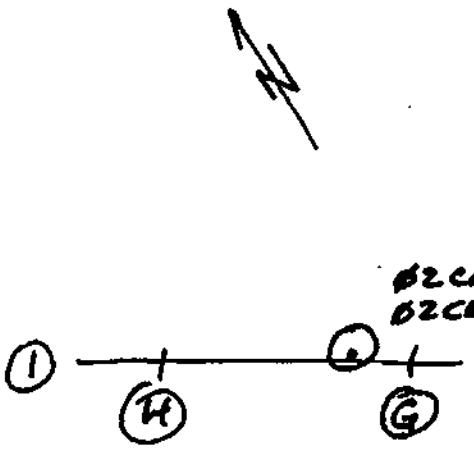
Sample Media: SURFACE WIPE Method: SURFACE WIPE

Collection Date/Time: YR: 2003 MO: 09 DAY: 11 Time: 1100

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-02-0903-W	*QA/QC Type: none*		
PCB	SW846-8082 (STL)	1-Poly bottle	Cool
DIOXIN	SW846-8290 (STL)	1-Poly bottle	Cool
Field ID: 02CR-02-0903-W-QA	*QA/QC Type: DUPLICATE-QA*		
DIOXIN	SW846-8290 (CEWES)	1-Poly bottle	Cool

COMMENTS/SKETCH/OBSERVATIONS

Sample collected from interior of south wall above steel door between column lines G + H.



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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

Sample Number: 02CR-03-0903-T Personnel: MGM, MKP, TJS

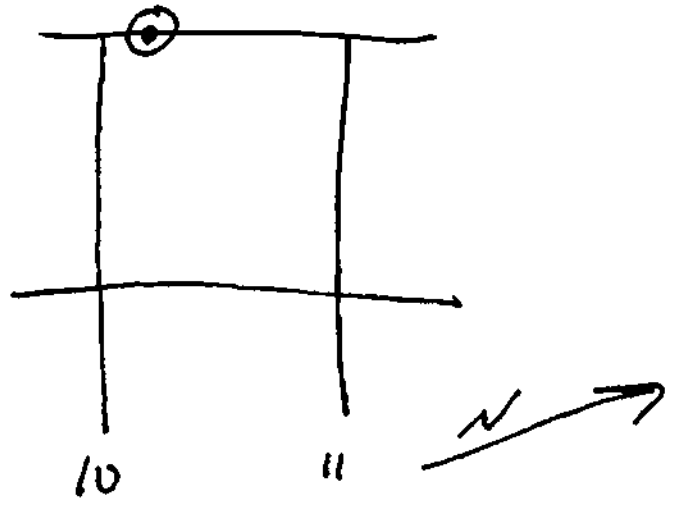
Location: BLDG 2 / 02CR-03 QA/QC Sample (Circle One): Yes (No)

Sample Media: BULK TRANSITE Method: CORE SAMPLER

Collection Date/Time: YR: 2003 MO: 09 DAY: 10 Time: 1501

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-03-0903-T	*QAQC Type: none*		
PCB	SW846-8082 (STL)	1-1 L jar	Cool
DIOXIN	SW846-8290 (STL)	1-1 L jar	Cool
Field ID: 02CR-03-0903-T-MS/MSD	*QAQC Type: MS/MSD*		
TJS ~~PCB~~	~~SW846-8082 (STL)~~	~~1-1 L jar~~	~~Cool~~
TJS ~~DIOXIN~~	~~SW846-8290 (STL)~~	~~1-1 L jar~~	~~Cool~~

COMMENTS/SKETCH/OBSERVATIONS: Sample was taken on the exterior of the West wall between 10 and 11 from a stained area below the lower roof.



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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

Sample Number: 02CR-03-0903-W Personnel: MGM, MRP, TJS

Location: BLDG 2 / 02CR-03 QA/QC Sample (Circle One): Yes (No)

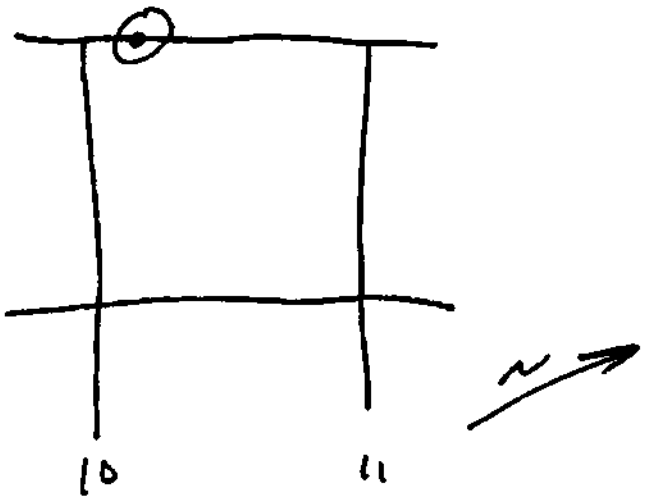
Sample Media: SURFACE WIPE Method: SURFACE WIPE

Collection Date/Time: YR: 2003 MO: 09 DAY: 10 Time: 1500

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-03-0903-W	*QAQC Type: none*		
PCB	SW846-8082 (STL)	1-Poly bottle	Cool
DIOXIN	SW846-8290 (STL)	1-Poly bottle	Cool
Field ID: 02CR-03-0903-W-MS/MSD	*QAQC Type: MS/MSD*		
~~PCB~~ TJS	~~SW846-8082 (STL)~~	~~1-Poly bottle~~	~~Cool~~
~~DIOXIN~~ TJS	~~SW846-8290 (STL)~~	~~1-Poly bottle~~	~~Cool~~

COMMENTS/SKETCH/OBSERVATIONS

Sample was taken on the exterior of the West wall between lines 10 and 11 from a stained area below the lower roof.



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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

Sample Number: 02CR-04-0903-T Personnel: MRP, MEM, TJS

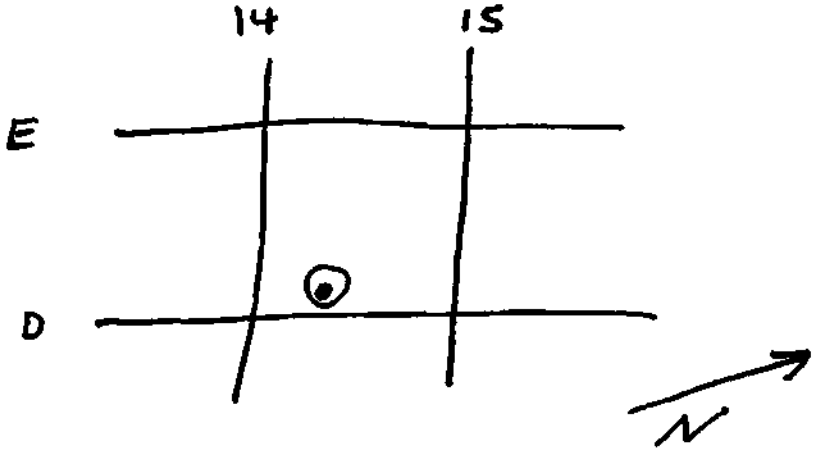
Location: BLDG 2 / 02CR-04 QA/QC Sample (Circle One): Yes (No)

Sample Media: BULK TRANSITE Method: CORE SAMPLER

Collection Date/Time: YR: 2003 MO: 09 DAY: 09 Time: 1530

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-04-0903-T	*QA/QC Type:* none		
PCB	SW846-8082 (STL)	1-1 L jar	Cool
DIOXIN	SW846-8290 (STL)	1-1 L jar	Cool

COMMENTS/SKETCH/OBSERVATIONS Sample was collected on the underside of the upper roof



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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

Sample Number: 02CR-04-0903-W Personnel: MRP, MGM, TTS

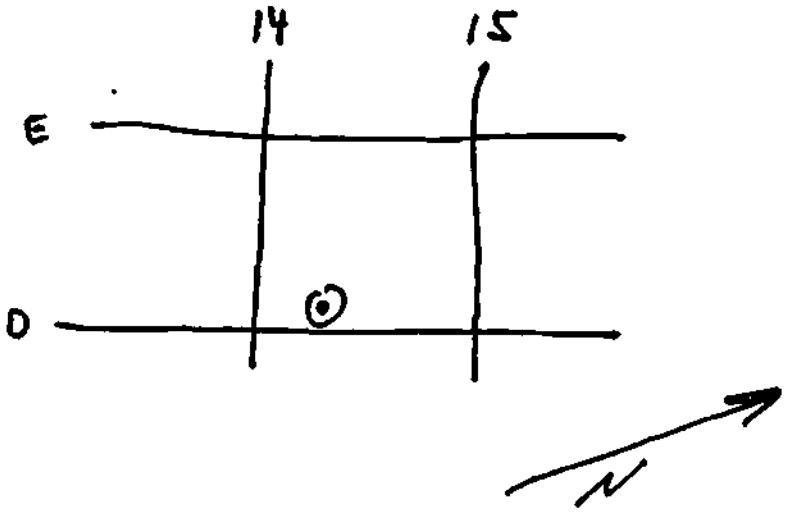
Location: BLDG 2 / 02CR-04 QA/QC Sample (Circle One): Yes (No)

Sample Media: SURFACE WIPE Method: SURFACE WIPE

Collection Date/Time: YR: 2003 MO: 09 DAY: 09 Time: 1530

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-04-0903-W	*QA/QC Type: none*		
PCB	SW846-8082 (STL)	1-Poly bottle	Cool
DIOXIN	SW846-8290 (STL)	1-Poly bottle	Cool

COMMENTS/SKETCH/OBSERVATIONS Sample was collected on the underside of the upper roof.



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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

Sample Number: 02CR-05-0903-T Personnel: MGM/MRP/TJC

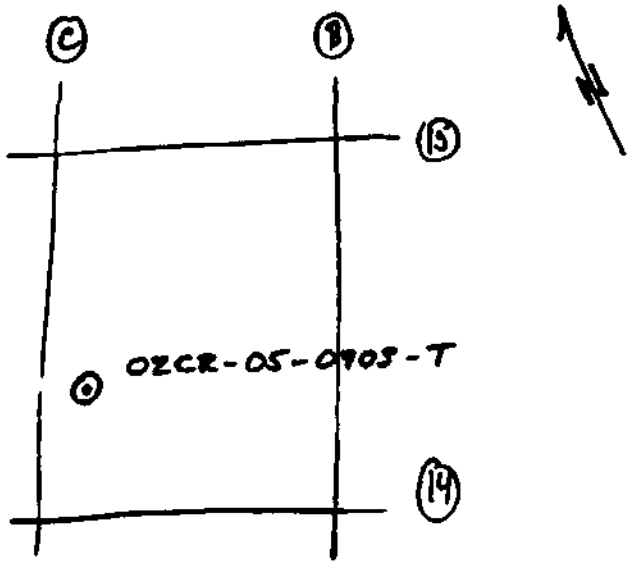
Location: BLDG 2 / 02CR-05 QA/QC Sample (Circle One): Yes (No)

Sample Media: BULK TRANSITE Method: CORE SAMPLER

Collection Date/Time: YR: 2005 MO: 09 DAY: 29 Time: 08

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-05-0903-T	*QAQC Type: none*		
PCB	SW846-8082 (STL)	1-1 L jar	Cool
DIOXIN	SW846-8290 (STL)	1-1 L jar	Cool

COMMENTS/SKETCH/OBSERVATIONS



Sample collected from lowest level of east roof between column lines B + C and 14 + 15.

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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

Sample Number: 02CR-05-0903-W Personnel: MGM/MRP/TJS

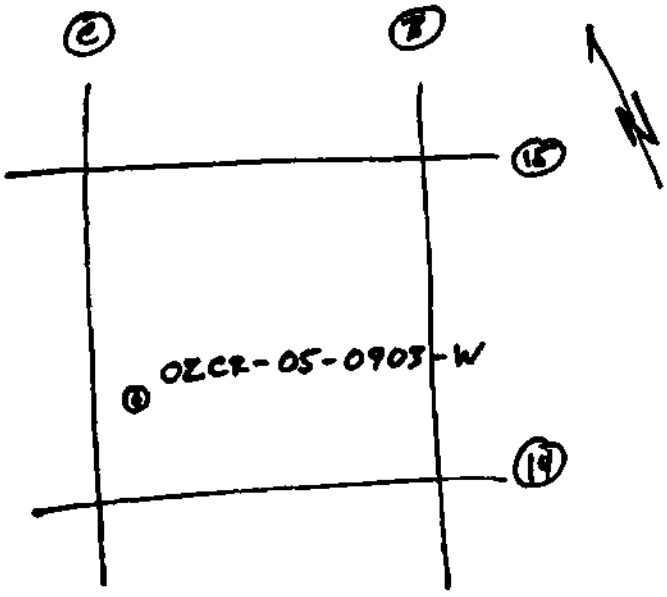
Location: BLDG 2 / 02CR-05 QA/QC Sample (Circle One): Yes (No)

Sample Media: SURFACE WIPE Method: SURFACE WIPE

Collection Date/Time: YR: 2005 MO: 09 DAY: 09 Time: 05

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-05-0903-W	*QA/QC Type: none*		
PCB	SW846-8082 (STL)	1-Poly bottle	Cool
DIOXIN	SW846-8290 (STL)	1-Poly bottle	Cool

COMMENTS/SKETCH/OBSERVATIONS



Sample collected from underside of lowest level of east roof, between column lines B+C and 14 + 15.

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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

Sample Number: 02CR-06-0903-T Personnel: MRP, MLM, TJS

Location: BLDG 2 / 02CR-06 QA/QC Sample (Circle One): Yes (No)

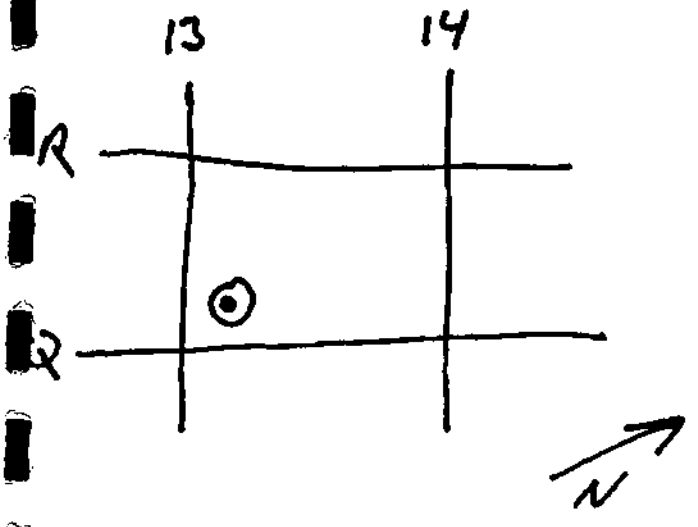
Sample Media: BULK TRANSITE Method: CORE SAMPLER

Collection Date/Time: YR: 2003 MO: 09 DAY: 10 Time: 1245

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-06-0903-T	*QAQC Type: none*		
PCB	SW846-8082 (STL)	1-1 L jar	Cool
DIOXIN	SW846-8290 (STL)	1-1 L jar	Cool

COMMENTS/SKETCH/OBSERVATIONS

Samples were taken from the underside of the lower roof.



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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

Sample Number: 02CR-06-0903-W Personnel: MRP, MGM, TJS

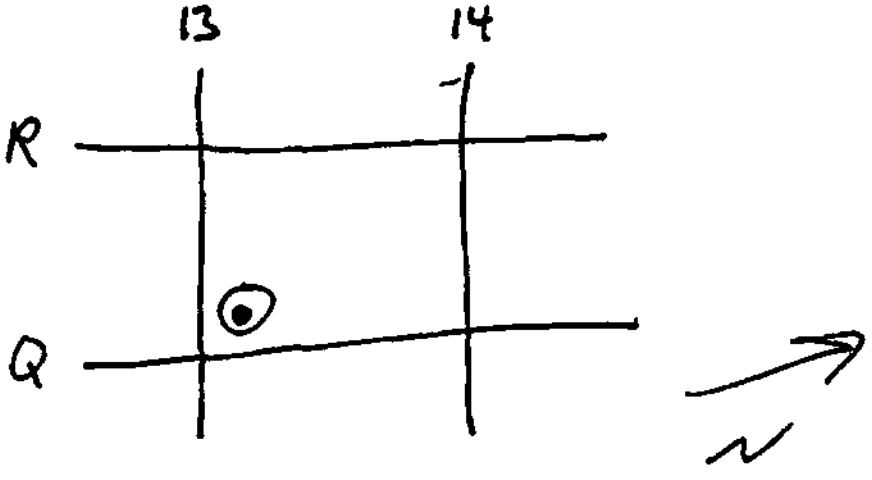
Location: BLDG 2 / 02CR-06 QA/QC Sample (Circle One): Yes (No)

Sample Media: SURFACE WIPE Method: SURFACE WIPE

Collection Date/Time: YR: 2003 MO: 09 DAY: 10 Time: 1245

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-06-0903-W	*QAQC Type: none*		
PCB	SW846-8082 (STL)	1-Poly bottle	Cool
DIOXIN	SW846-8290 (STL)	1-Poly bottle	Cool

COMMENTS/SKETCH/OBSERVATIONS Samples were taken from the underside of the lower roof.



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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

Sample Number: 02CR-07-0903-T Personnel: MGM/MRP/TJS

Location: BLDG 2 / 02CR-07 QA/QC Sample (Circle One): Yes (No)

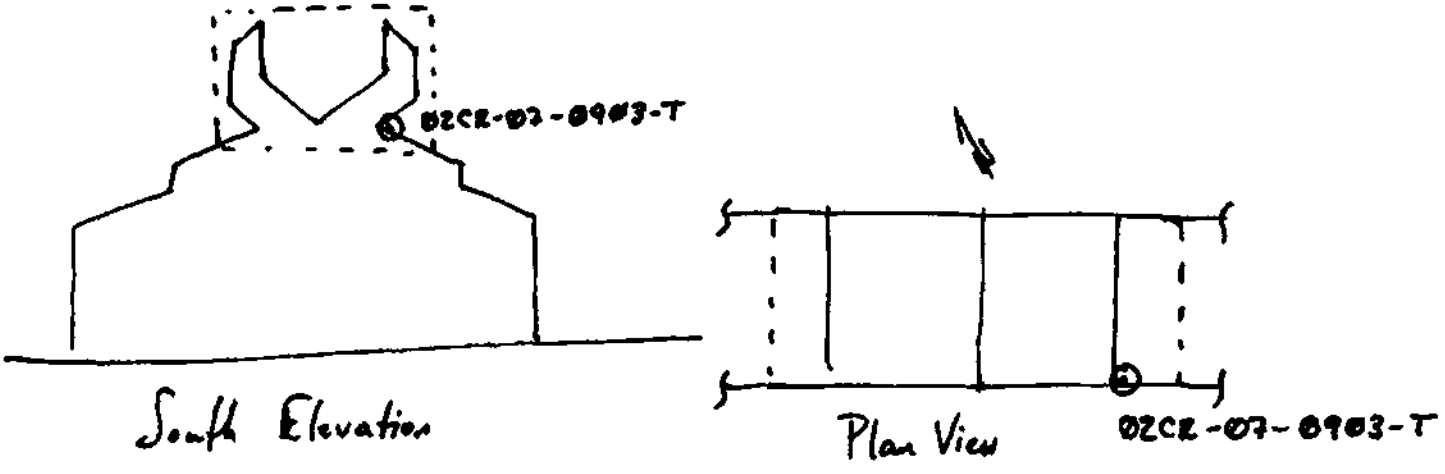
Sample Media: BULK TRANSITE Method: CORE SAMPLER

Collection Date/Time: YR: 2007 MO: 09 DAY: 11 Time: 0960

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-07-0903-T	*QA/QC Type: none*		
PCB	SW846-8082 (STL)	1-1 L jar	Cool
DIOXIN	SW846-8290 (STL)	1-1 L jar	Cool

COMMENTS/SKETCH/OBSERVATIONS

Sample collected from exterior of east roof below clamshell.



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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

Sample Number: 02CR-07-0903-W Personnel: MGM/MEP/TJK

Location: BLDG 2 / 02CR-07 QA/QC Sample (Circle One): Yes (No)

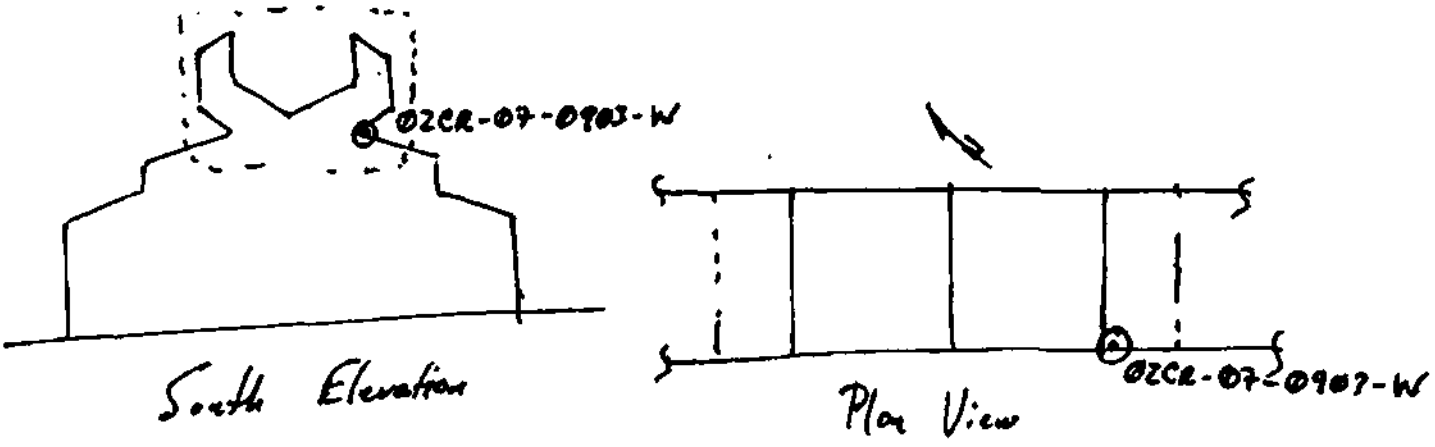
Sample Media: SURFACE WIPE Method: SURFACE WIPE

Collection Date/Time: YR: 2003 MO: 09 DAY: 11 Time: 0950

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-07-0903-W	*QA/QC Type: none*		
PCB	SW846-8082 (STL)	1-Poly bottle	Cool
DIOXIN	SW846-8290 (STL)	1-Poly bottle	Cool

COMMENTS/SKETCH/OBSERVATIONS

Sample collected from exterior of cart roof below clamshell.



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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

Sample Number: 02CR-08-0903-T Personnel: MRP, MGM, TJS

Location: BLDG 2 / 02CR-08 QA/QC Sample (Circle One): (Yes) No EPA split 090903-1+2

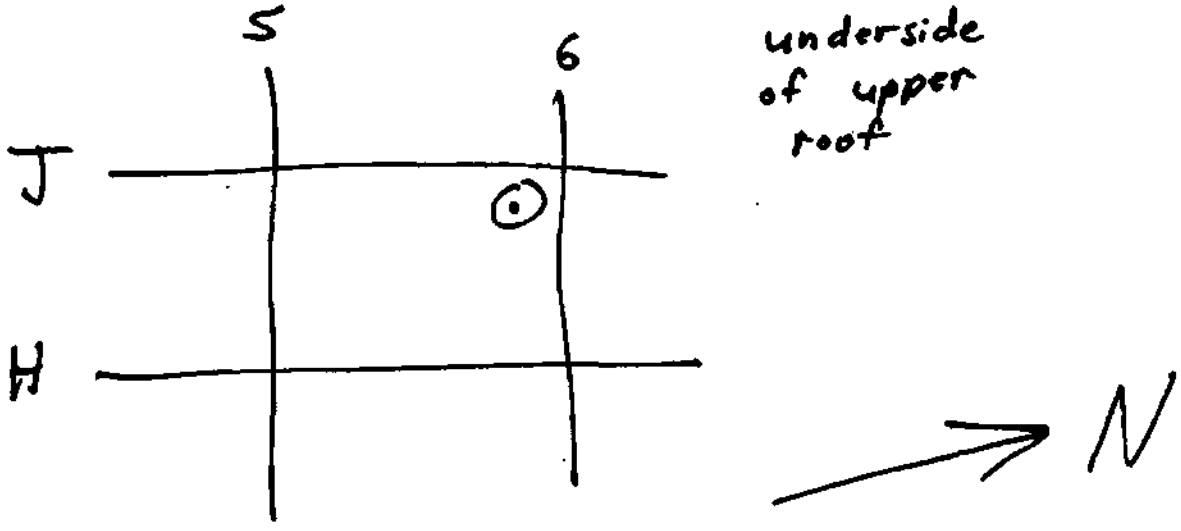
Sample Media: BULK TRANSITE Method: CORE SAMPLER

Collection Date/Time: YR: 2003 MO: 09 DAY: 09 Time: 0900

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-08-0903-T	*QA/QC Type: none*		
PCB	SW846-8082 (STL)	1-1 L jar	Cool
DIOXIN	SW846-8290 (STL)	1-1 L jar	Cool

COMMENTS/SKETCH/OBSERVATIONS

≅ J-6



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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

Sample Number: 02CR-08-0903-W Personnel: MRP, MGM, TJS

Location: BLDG 2 / 02CR-08 QA/QC Sample (Circle One): Yes (No)

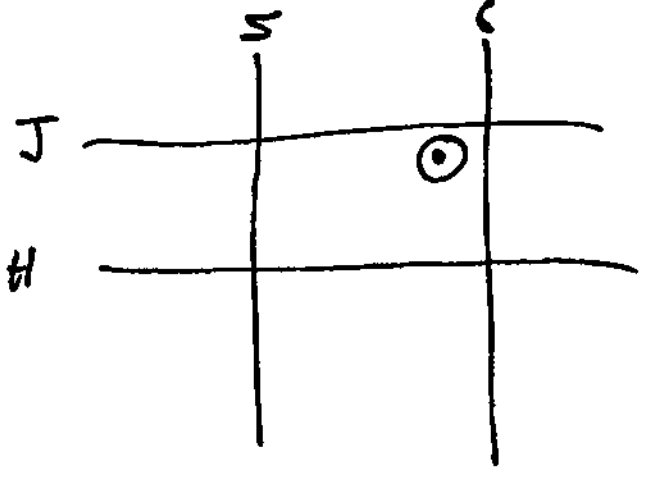
Sample Media: SURFACE WIPE Method: SURFACE WIPE

Collection Date/Time: YR: 2003 MO: 09 DAY: 09 Time: 0900

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-08-0903-W	*QA/QC Type: none*		
PCB	SW846-8082 (STL)	1-Poly bottle	Cool
DIOXIN	SW846-8290 (STL)	1-Poly bottle	Cool

COMMENTS/SKETCH/OBSERVATIONS

J-6



Underside of upper roof.

N

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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

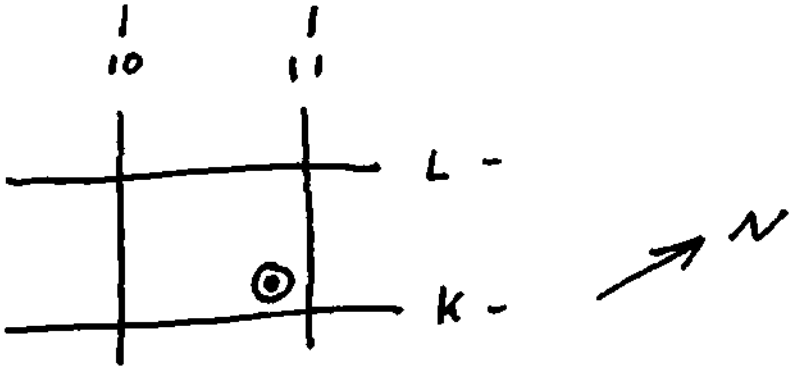
Sample Number: 02CR-09-0903-T Personnel: MRD, MEM, TJS

Location: BLDG 2 / 02CR-09 QA/QC Sample (Circle One): Yes (No)

Sample Media: BULK TRANSITE Method: CORE SAMPLER

Collection Date/Time: YR: 2003 MO: 09 DAY: 09 Time: 1120

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-09-0903-T	*QAQC Type: none*		
PCB	SW846-8082 (STL)	1-1 L jar	Cool
DIOXIN	SW846-8290 (STL)	1-1 L jar	Cool



COMMENTS/SKETCH/OBSERVATIONS

Taken from underside of the roof.

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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

Sample Number: 02CR-09-0903-W Personnel: MAP, MGM, TJS

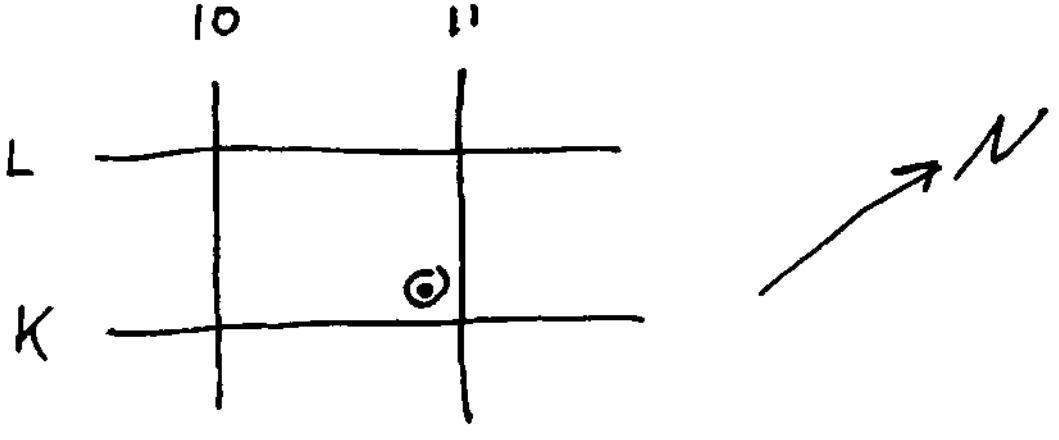
Location: BLDG 2 / 02CR-09 QA/QC Sample (Circle One): Yes (No)

Sample Media: SURFACE WIPE Method: SURFACE WIPE

Collection Date/Time: YR: 2003 MO: 09 DAY: 09 Time: 1120

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-09-0903-W	*QAQC Type: none*		
PCB	SW846-8082 (STL)	1-Poly bottle	Cool
DIOXIN	SW846-8290 (STL)	1-Poly bottle	Cool

COMMENTS/SKETCH/OBSERVATIONS Taken from underside of the roof.



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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

Sample Number: 02CR-10-0903-T Personnel: MRP, MEM, TJL

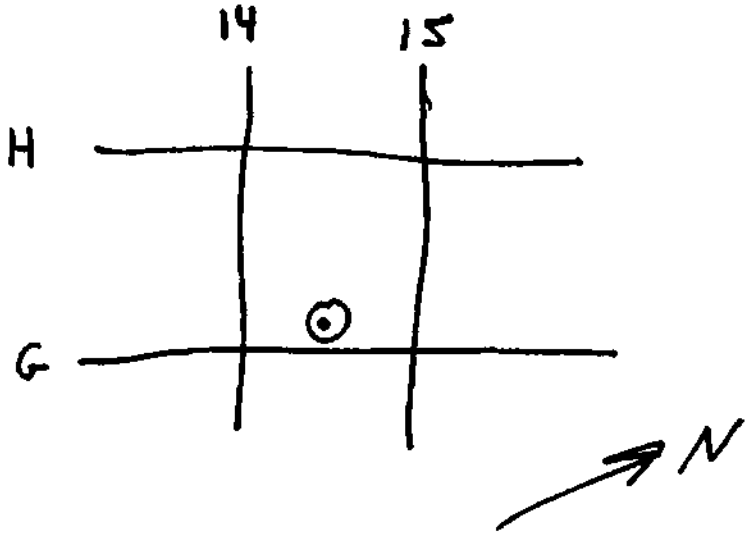
Location: BLDG 2 / 02CR-10 QA/QC Sample (Circle One): (Yes) No

Sample Media: BULK TRANSITE Method: CORE SAMPLER

Collection Date/Time: YR: 2003 MO: 09 DAY: 09 Time: 1300

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-10-0903-T	*QAQC Type: none*		
PCB	SW846-8082 (STL)	1-1 L jar	Cool
DIOXIN	SW846-8290 (STL)	1-1 L jar	Cool
Field ID: 02CR-10-0903-T-MS/MSD	*QAQC Type: MS/MSD*		
PCB	SW846-8082 (STL)	1-1 L jar	Cool
DIOXIN	SW846-8290 (STL)	1-1 L jar	Cool

COMMENTS/SKETCH/OBSERVATIONS: Sample was taken on the underside of the upper roof.



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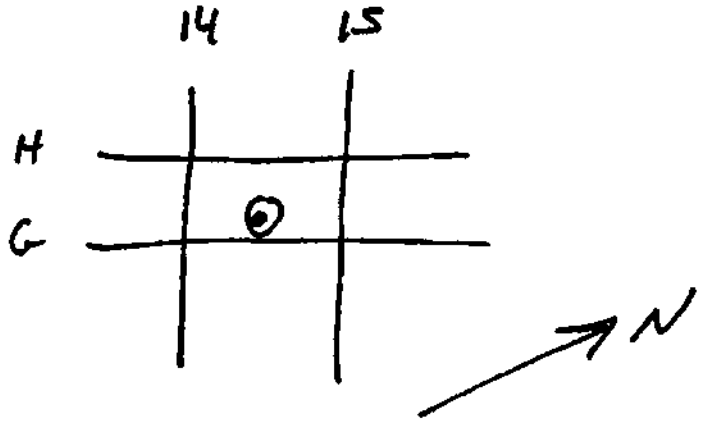
SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study
Job Number 16529783
Sample Number: 02CR-10-0903-W
Personnel: MRP, MLM, TJS
Location: BLDG 2 / 02CR-10
QA/QC Sample (Circle One): (Yes) No
Sample Media: SURFACE WIPE
Method: SURFACE WIPE
Collection Date/Time: YR: 2003 MO: 09 DAY: 09 Time: 1300

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-10-0903-W	*QAQC Type: none*		
PCB	SW846-8082 (STL)	1-Poly bottle	Cool
DIOXIN	SW846-8290 (STL)	1-Poly bottle	Cool
Field ID: 02CR-10-0903-W-MS/MSD	*QAQC Type: MS/MSD*		
PCB	SW846-8082 (STL)	1-Poly bottle	Cool
DIOXIN	SW846-8290 (STL)	1-Poly bottle	Cool

COMMENTS/SKETCH/OBSERVATIONS: Sample was taken on the underside of the upper roof.



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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

Sample Number: 02CR-11-0903-T Personnel: MGM/MRP/TRS

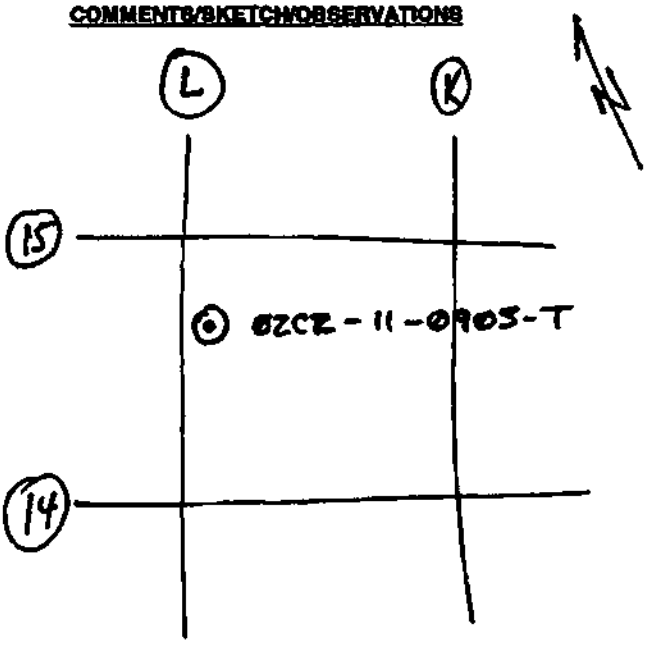
Location: BLDG 2 / 02CR-11 QA/QC Sample (Circle One): Yes (No)

Sample Media: BULK TRANSITE Method: CORE SAMPLER

Collection Date/Time: YR: 2005 MO: 09 DAY: 10 Time: 1030

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-11-0903-T	*QAQC Type: none*		
PCB	SW846-8082 (STL)	1-1 L jar	Cool
DIOXIN	SW846-8290 (STL)	1-1 L jar	Cool

COMMENTS/SKETCH/OBSERVATIONS



Sample collected from western clearest roof between columns L + K and 14 + 15.

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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

Sample Number: 02CR-11-0903-W Personnel: MGM/MRP/TJS

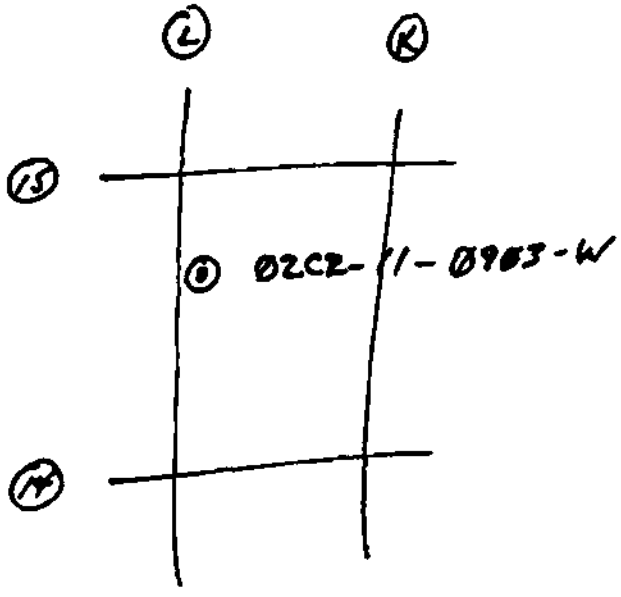
Location: BLDG 2 / 02CR-11 QA/QC Sample (Circle One): Yes (No)

Sample Media: SURFACE WIPE Method: SURFACE WIPE

Collection Date/Time: YR: 2009 MO: 09 DAY: 10 Time: 1050

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-11-0903-W	*QA/QC Type: none*		
PCB	SW846-8082 (STL)	1-Poly bottle	Cool
DIOXIN	SW846-8290 (STL)	1-Poly bottle	Cool

COMMENTS/SKETCH/OBSERVATIONS



Sample collected from underside of western clamshell roof between column lines L+K and 14+15.

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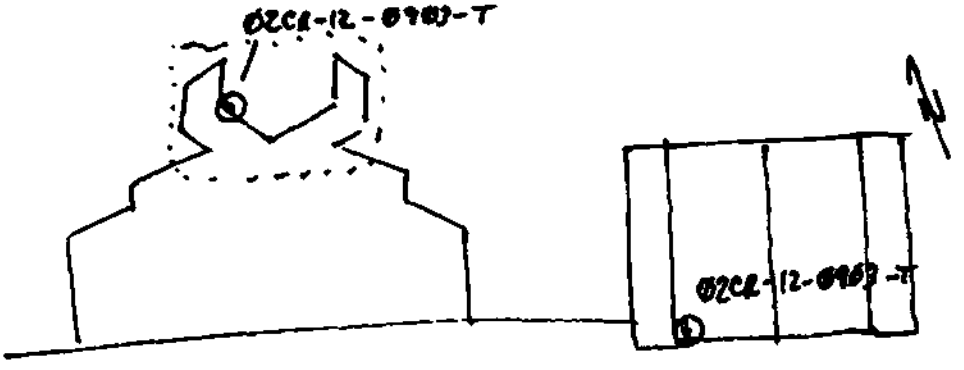
SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study
Job Number 16529783
Sample Number: 02CR-12-0903-T
Personnel: MGM/MRP/TJI
Location: BLDG 2 / 02CR-12
QA/QC Sample (Circle One): Yes (No)
Sample Media: BULK TRANSITE
Method: CORE SAMPLER
Collection Date/Time: YR: 2003 MO: 09 DAY: 11 Time: 0910

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-12-0903-T	*QAQC Type: none*		
PCB	SW846-8082 (STL)	1-1 L jar	Cool
DIOXIN	SW846-8290 (STL)	1-1 L jar	Cool

COMMENTS/SKETCH/OBSERVATIONS

Sample collected from exterior of clerestory roof.



South Elevation

Plan View

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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

Sample Number: 02CR-12-0903-W Personnel: MGM/MRP/TJS

Location: BLDG 2 / 02CR-12 QA/QC Sample (Circle One): Yes (No)

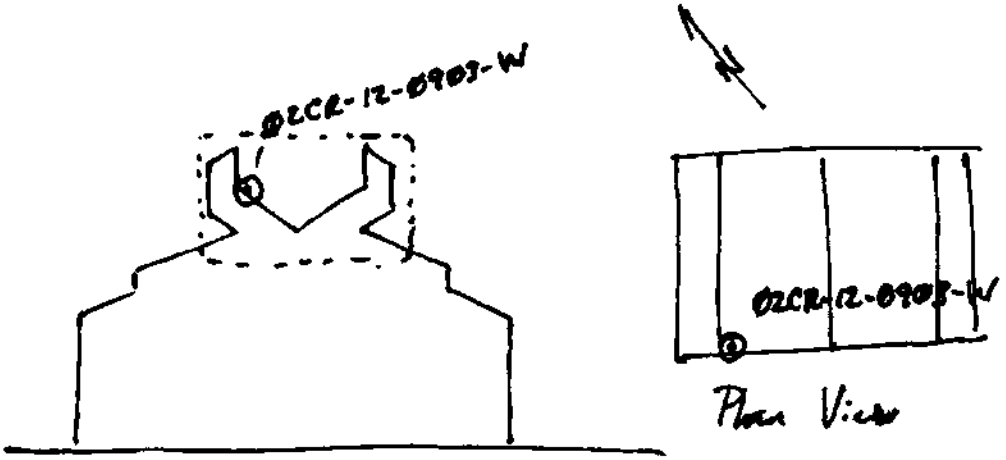
Sample Media: SURFACE WIPE Method: SURFACE WIPE

Collection Date/Time: YR: 2008 MO: 09 DAY: 11 Time: 0910

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-12-0903-W	*QA/QC Type: none*		
PCB	SW846-8082 (STL)	1-Poly bottle	Cool
DIOXIN	SW846-8290 (STL)	1-Poly bottle	Cool

COMMENTS/SKETCH/OBSERVATIONS

Sample collected from exterior of clamshell roof.



South Elevation

Plan View

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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

Sample Number: 02CR-13-0903-T Personnel: MGM, MRP, TTS

Location: BLDG 2 / 02CR-13 QA/QC Sample (Circle One): Yes (No)

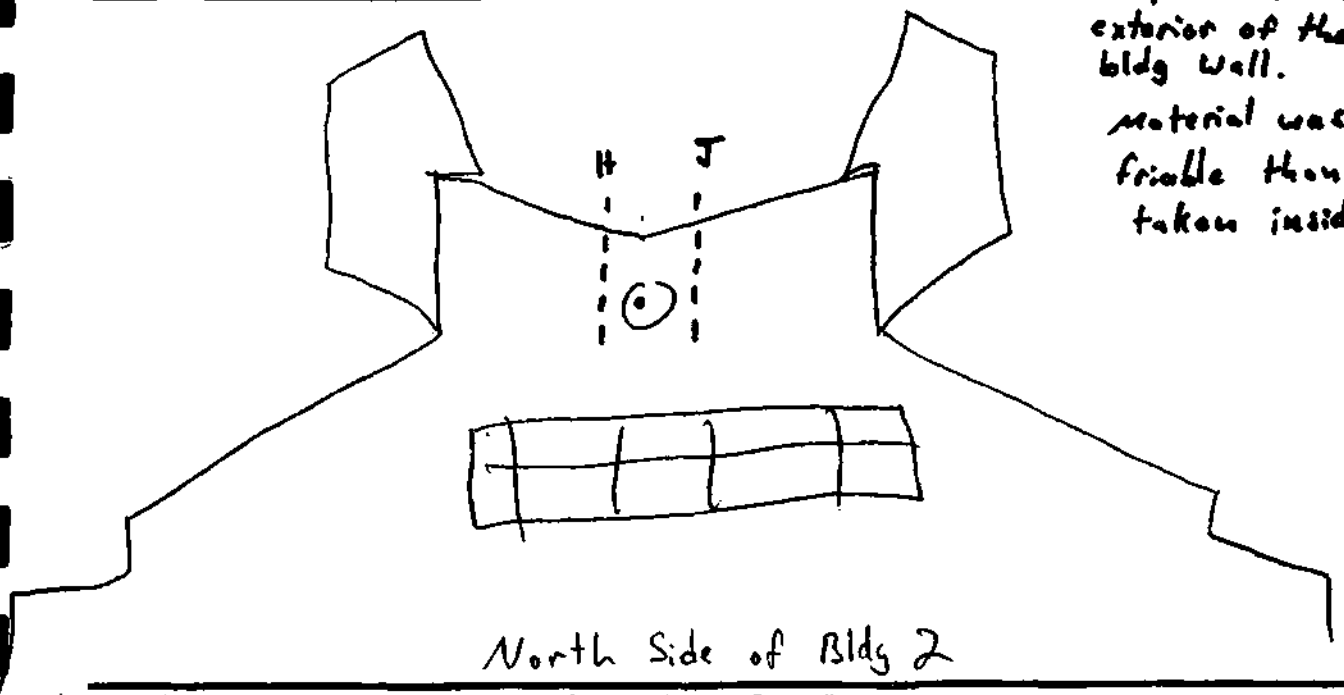
Sample Media: BULK TRANSITE Method: CORE SAMPLER

Collection Date/Time: YR: 2003 MO: 09 DAY: 10 Time: 1415

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-13-0903-T	*QA/QC Type: none*		
PCB	SW846-8082 (STL)	1-1 L jar	Cool
DIOXIN	SW846-8290 (STL)	1-1 L jar	Cool

COMMENTS/SKETCH/OBSERVATIONS

Sample was taken on the exterior of the north bldg wall.
material was much more friable than samples taken inside



North Side of Bldg 2

16

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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

Sample Number: 02CR-13-0903-W Personnel: MCM, MRP, TJS

Location: BLDG 2 / 02CR-13 QA/QC Sample (Circle One): Yes (No)

Sample Media: SURFACE WIPE Method: SURFACE WIPE

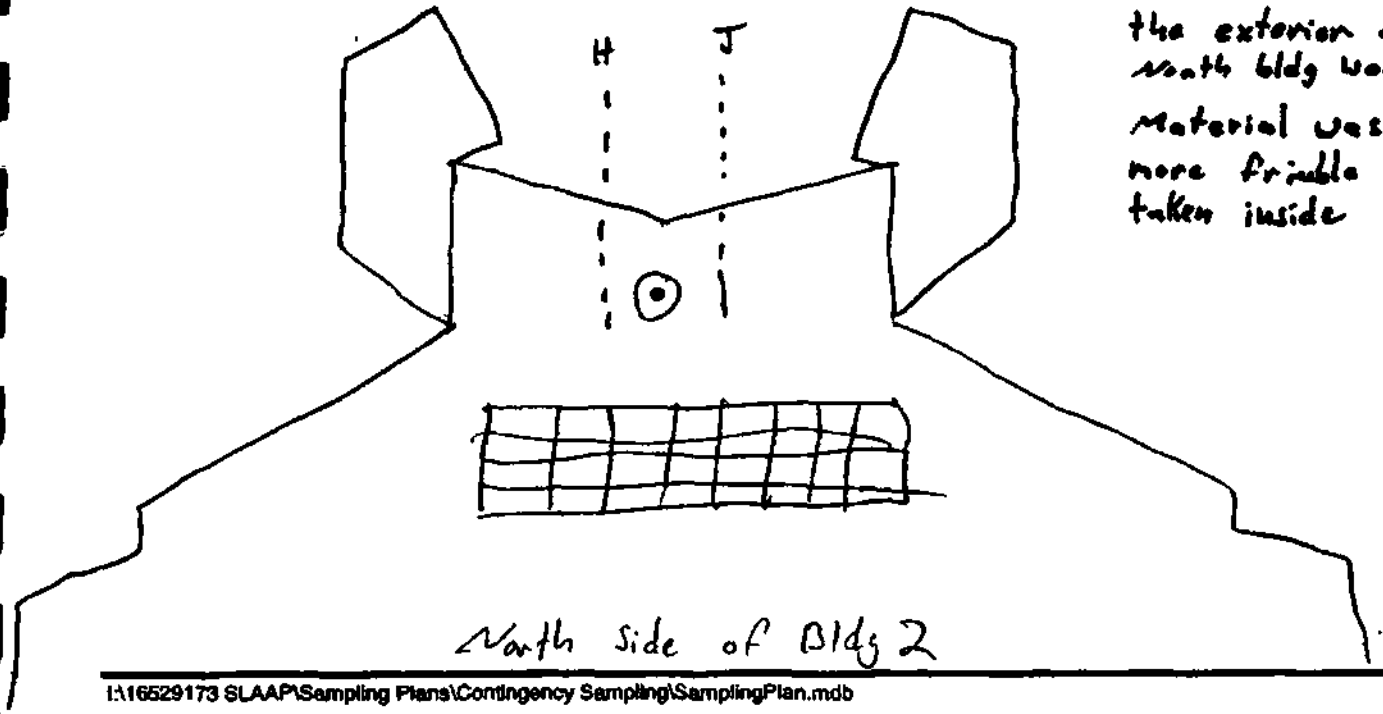
Collection Date/Time: YR: 2003 MO: 09 DAY: 10 Time: 1415

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-13-0903-W	*QAQC Type: none*		
PCB	SW846-8082 (STL)	1-Poly bottle	Cool
DIOXIN	SW846-8290 (STL)	1-Poly bottle	Cool

COMMENTS/SKETCH/OBSERVATIONS

Sample was taken on the exterior of the north bldg wall.

Material was much more friable than samples taken inside



North side of Bldg 2

16

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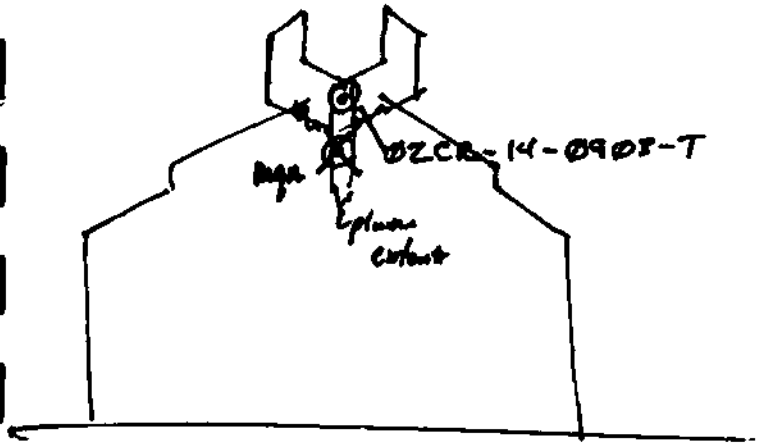
SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study
Job Number 16529783
Sample Number: 02CR-14-0903-T
Personnel: MGM/MRP/TJS
Location: BLDG 2 / 02CR-14
QA/QC Sample (Circle One): Yes (No)
Sample Media: BULK TRANSITE
Method: CORE SAMPLER
Collection Date/Time: YR: 2003 MO: 09 DAY: 11 Time: 0830

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-14-0903-T	*QA/QC Type: none*		
PCB	SW846-8082 (STL)	1-1 L jar	Cool
DIOXIN	SW846-8290 (STL)	1-1 L jar	Cool

COMMENTS/SKETCH/OBSERVATIONS

Sample collected from plume on southern exterior wall below clamshell center gutter.



South Elevation

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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

Sample Number: 02CR-14-0903-W Personnel: MGM / MRP / TJS

Location: BLDG 2 / 02CR-14 QA/QC Sample (Circle One): Yes (No)

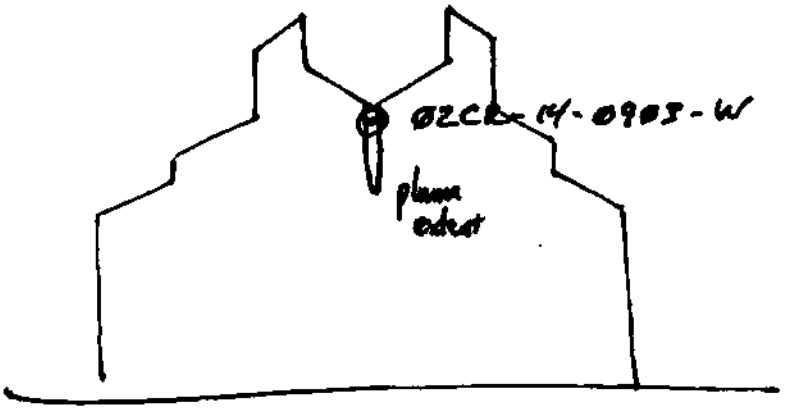
Sample Media: SURFACE WIPE Method: SURFACE WIPE

Collection Date/Time: YR: 2003 MO: 09 DAY: 11 Time: 0830

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-14-0903-W	*QAQC Type: none*		
PCB	SW846-8082 (STL)	1-Poly bottle	Cool
DIOXIN	SW846-8290 (STL)	1-Poly bottle	Cool

COMMENTS/SKETCH/OBSERVATIONS

Sample collected from plume on southern exterior wall below clamshell center gutter.



SOUTH ELEVATION

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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

Sample Number: 02CR-15-0903-T Personnel: MGM, MRP, TJS

Location: BLDG 2 / 02CR-15 QA/QC Sample (Circle One): Yes (No)

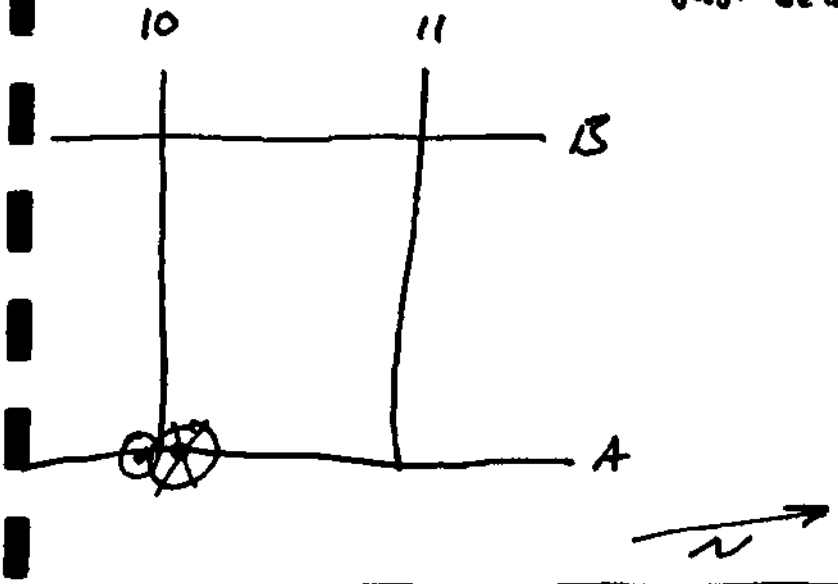
Sample Media: BULK TRANSITE Method: CORE SAMPLER

Collection Date/Time: YR: 2003 MO: 09 DAY: 10 Time: 1535

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-15-0903-T	*QAQC Type: none*		
PCB	SW846-8082 (STL)	1-1 L jar	Cool
DIOXIN	SW846-8290 (STL)	1-1 L jar	Cool

COMMENTS/SKETCH/OBSERVATIONS

The sample was taken on the exterior of the East wall from a stained area just below the lower roof.



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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

Sample Number: 02CR-15-0903-W Personnel: MGM, MRP, TJJ

Location: BLDG 2 / 02CR-15 QA/QC Sample (Circle One): Yes (No)

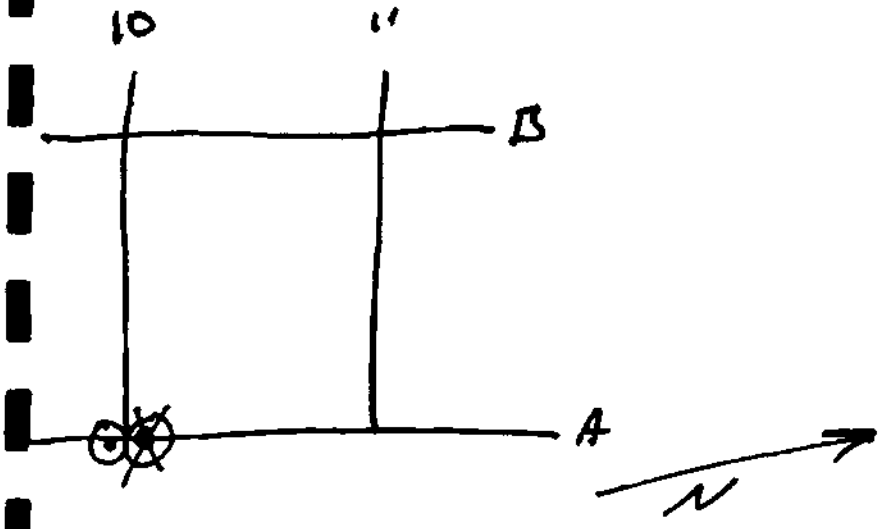
Sample Media: SURFACE WIPE Method: SURFACE WIPE

Collection Date/Time: YR: 2003 MO: 09 DAY: 10 Time: 1525

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-15-0903-W	*QA/QC Type: none*		
PCB	SW846-8082 (STL)	1-Poly bottle	Cool
DIOXIN	SW846-8290 (STL)	1-Poly bottle	Cool

COMMENTS/SKETCH/OBSERVATIONS

The sample was taken on the exterior of the East wall from a stained area just below the lower roof.



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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

Sample Number: 02CR-16-0903-W Personnel: MGM/MRP/TJK

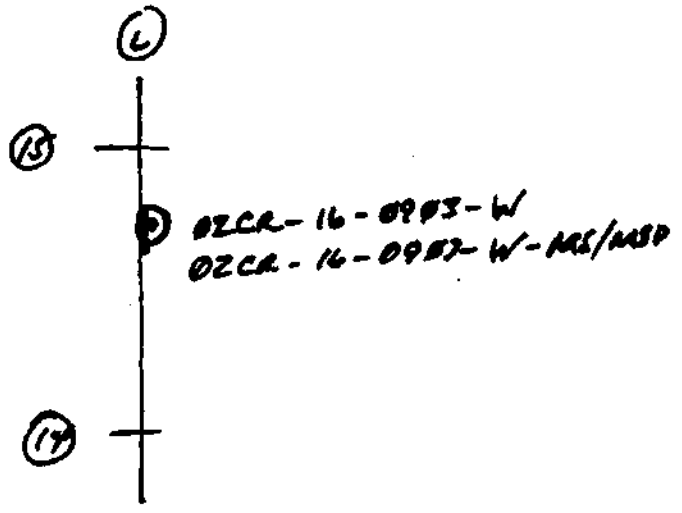
Location: BLDG 2 / 02CR-16 QA/QC Sample (Circle One): (Yes) No

Sample Media: SURFACE WIPE Method: SURFACE WIPE

Collection Date/Time: YR: 2008 MO: 09 DAY: 10 Time: 1015

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-16-0903-W	*QAQC Type: none*		
PCB	SW846-8082 (STL)	1-Poly bottle	Cool
DIOXIN	SW846-8290 (STL)	1-Poly bottle	Cool
Field ID: 02CR-16-0903-W-MS/MSD	*QAQC Type: MS/MSD*		
PCB	SW846-8082 (STL)	1-Poly bottle	Cool
DIOXIN	SW846-8290 (STL)	1-Poly bottle	Cool

COMMENTS/SKETCH/OBSERVATIONS



Samples collected from roof support girder along column line L between column lines 14 and 15.

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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

Sample Number: 02CR-17-0903-W Personnel: MAP, TJS, MGM

Location: BLDG 2 / 02CR-17 QA/QC Sample (Circle One): Yes (No)

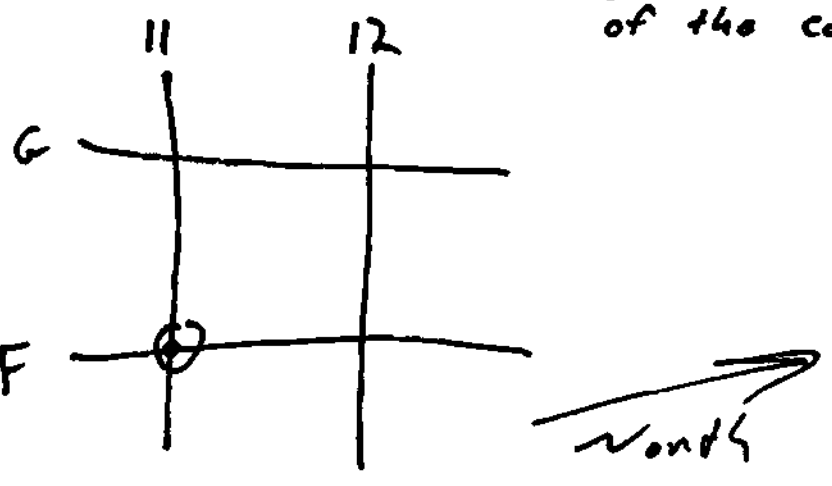
Sample Media: SURFACE WIPE Method: SURFACE WIPE

Collection Date/Time: YR: 2007 MO: 09 DAY: 10 Time: 1140

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-17-0903-W	*QAQC Type: none*		
PCB	SW846-8082 (STL)	1-Poly bottle	Cool
DIOXIN	SW846-8290 (STL)	1-Poly bottle	Cool

COMMENTS/SKETCH/OBSERVATIONS

Sample was taken on the North side of Column F-11 at the elevation of the catwalk.



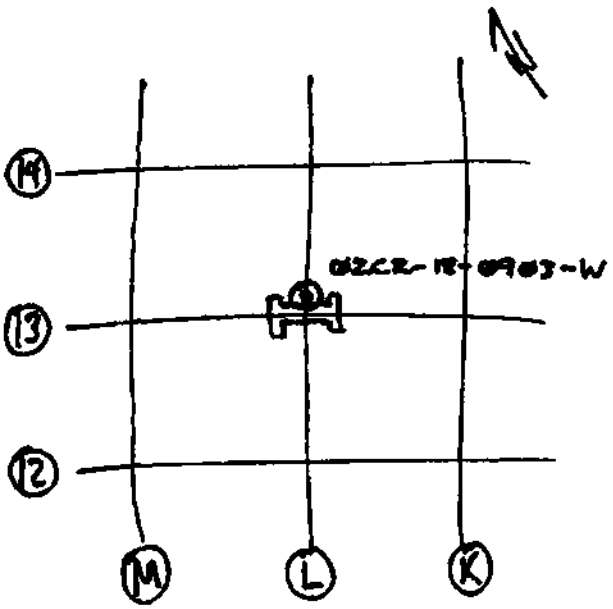
URS Group, Inc.
10975 El Monte, Suite 100
Overland Park, Kansas 66211
(913) 344-1000

SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study
Job Number 16529783
Sample Number: 02CR-18-0903-W
Personnel: MGM/MRP/TTS
Location: BLDG 2 / 02CR-18
QA/QC Sample (Circle One): Yes (No)
Sample Media: SURFACE WIPE
Method: SURFACE WIPE
Collection Date/Time: YR: 2003 MO: 09 DAY: 11 Time: 1200

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-18-0903-W	*QAQC Type: none*		
PCB	SW846-8082 (STL)	1-Poly bottle	Cool
DIOXIN	SW846-8290 (STL)	1-Poly bottle	Cool

COMMENTS/SKETCH/OBSERVATIONS



Sample collected from north side of column L-13 approximately 12' above floor.

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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

Sample Number: 02CR-19-0903-W Personnel: MGM/MRP/TJT

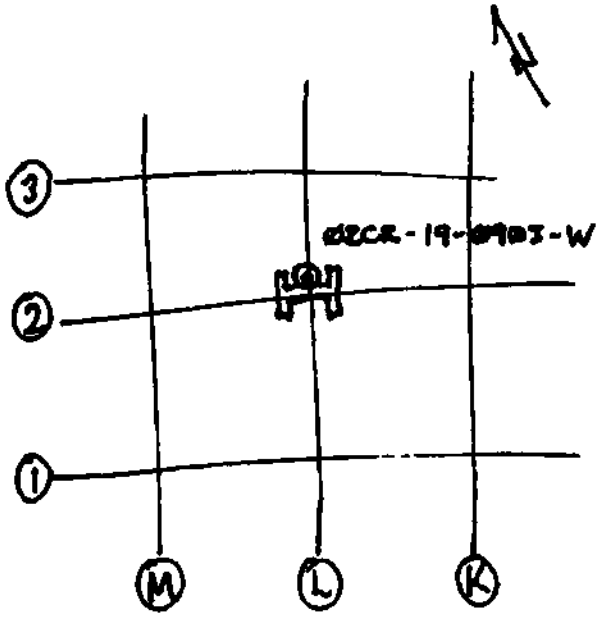
Location: BLDG 2 / 02CR-19 QA/QC Sample (Circle One): Yes (No)

Sample Media: SURFACE WIPE Method: SURFACE WIPE

Collection Date/Time: YR: 2003 MO: 09 DAY: 11 Time: 1145

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-19-0903-W	*QAQC Type: none*		
PCB	SW846-8082 (STL)	1-Poly bottle	Cool
DIOXIN	SW846-8290 (STL)	1-Poly bottle	Cool

COMMENTS/SKETCH/OBSERVATIONS



Sample collected from north side of column L-2 approximately 12' above floor.

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SAMPLE COLLECTION FIELD SHEET

Project Name: SLAAP Building 2 Siding and Structural Steel Screening Study Job Number 16529783

Sample Number: 02CR-20-0903-W Personnel: MGM/MRP/TJS

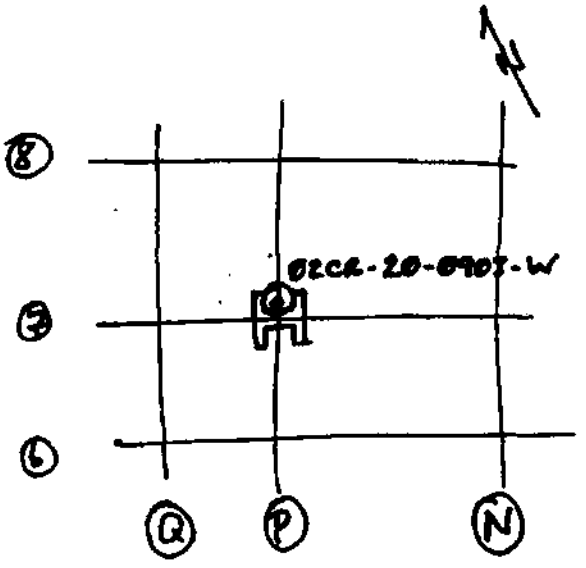
Location: BLDG 2 / 02CR-20 QA/QC Sample (Circle One): Yes (No)

Sample Media: SURFACE WIPE Method: SURFACE WIPE

Collection Date/Time: YR: 2003 MO: 09 DAY: 11 Time: 1215

Analyte	Method (Lab Name)	Sample Container	Preservation
Field ID: 02CR-20-0903-W	*QAQC Type: none*		
PCB	SW846-8082 (STL)	1-Poly bottle	Cool
DIOXIN	SW846-8290 (STL)	1-Poly bottle	Cool

COMMENTS/SKETCH/OBSERVATIONS



Sample collected from north side of column P-7 approximately 4' above floor.

SLAAP Building 2 Screening Study Photograph Log

Screening Study Photos

The following photographs depict the present-day condition of Building 2, as well as the sampling activities and sample locations from the Siding and Structural Steel Screening Study.

Investigation Area / Photograph Number	Sample Location(s) Depicted	Date of Sample Collection	Comments / Description
SS-01	na	na	South side of Building 2, facing north
SS-02	na	na	Clamshell roof viewed from NW looking SE
SS-03	na	na	Interior of clamshell roof, west side looking SW
SS-04	na	na	Center area of Building 2, facing north
SS-05	na	na	Northern portion of Building 2 viewed from the western mezzanine level
SS-06	na	na	Aerial lift used to access most sample locations
SS-07	02CR-10	09/09/03	Aerial lift reaching to 02CR-10 sample location
SS-08	02CR-02	09/11/03	Aerial lift reaching to 02CR-02 sample location
SS-09	na	na	Bulk transite sample material
SS-10	02CR-01	09/10/03	
SS-11	02CR-02	09/11/03	
SS-12	02CR-03	09/10/03	
SS-13	02CR-04	09/09/03	
SS-14	02CR-05	09/09/03	
SS-15	02CR-06	09/10/03	
SS-16	02CR-07	09/11/03	
SS-17	02CR-08	09/09/03	
SS-18	02CR-09	09/09/03	
SS-19	02CR-10	09/09/03	
SS-20	02CR-11	09/10/03	
SS-21	02CR-12	09/11/03	
SS-22	02CR-13	09/10/03	
SS-23	02CR-14	09/11/03	
SS-24	02CR-15	09/10/03	
SS-25	02CR-16	09/10/03	
SS-26	02CR-17	09/10/03	
SS-27	02CR-18	09/11/03	
SS-28	02CR-19	09/11/03	
SS-29	02CR-20	09/11/03	

SLAAP Building 2 Screening Study Photograph Log

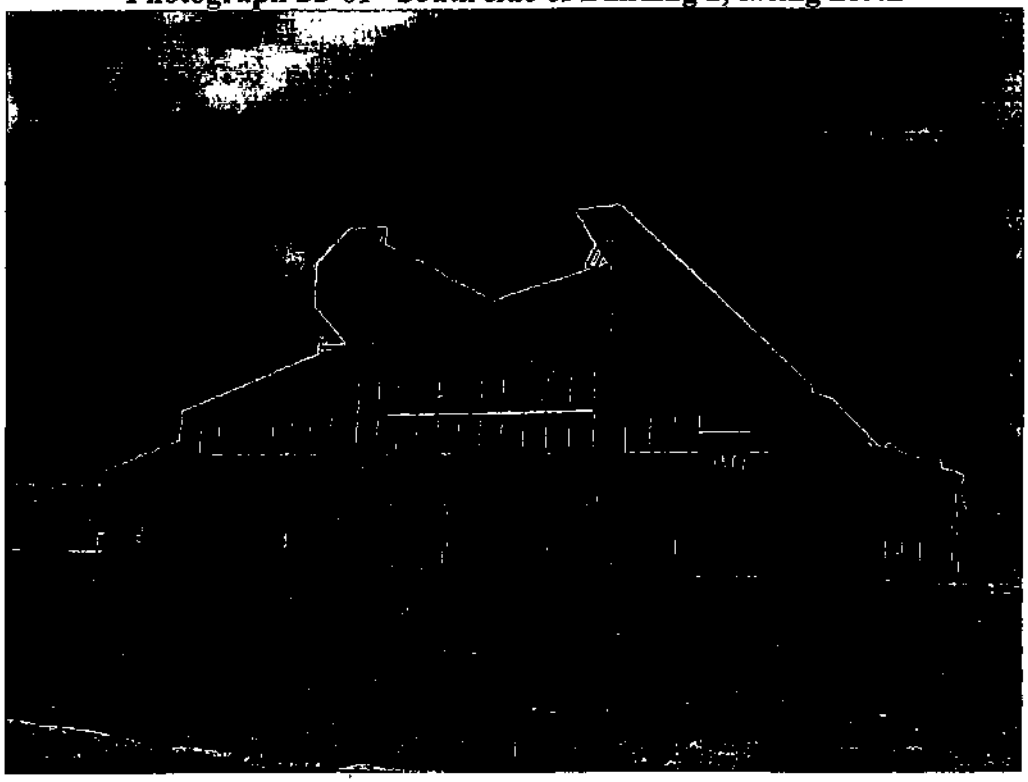
Historical Building 2 Photos

The following photographs were found inside of Building 3 during demolition activities in August 2002. The date of the photographs is unknown, but they are believed to have been taken during the operational period that produced munitions to support the Vietnam War. The photographs have been included in this report to provide further insight into the nature of the process operations that occurred in Building 2.

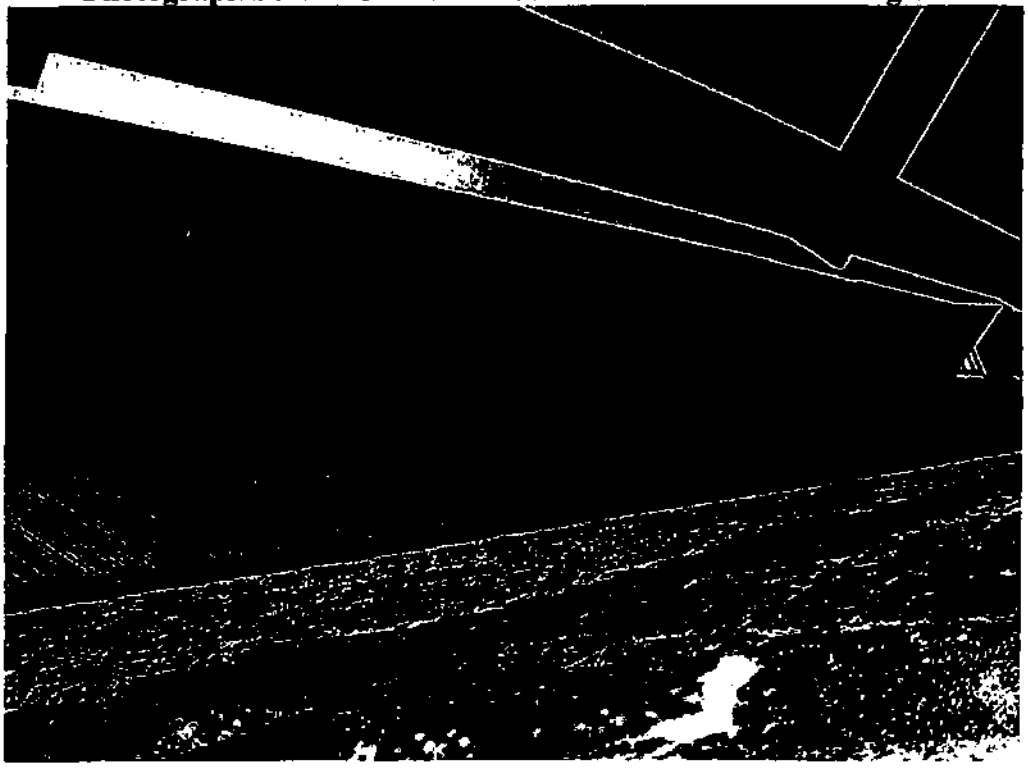
Investigation Area / Photograph Number	Sample Location(s) Depicted	Date of Sample Collection	Comments / Description
H2-01	na	na	SW corner of Building 2, facing east
H2-02	na	na	East side of Building 2, facing west
H2-03	na	na	Three process loops, viewed from center of building
H2-04	na	na	Rotary furnace and skid conveyor
H2-05	na	na	Piercing press and rotary furnaces
H2-06	na	na	Conveyor system leading to Building 3

SLAAP Building 2 Screening Study Photograph Log

Photograph SS-01 South side of Building 2, facing north

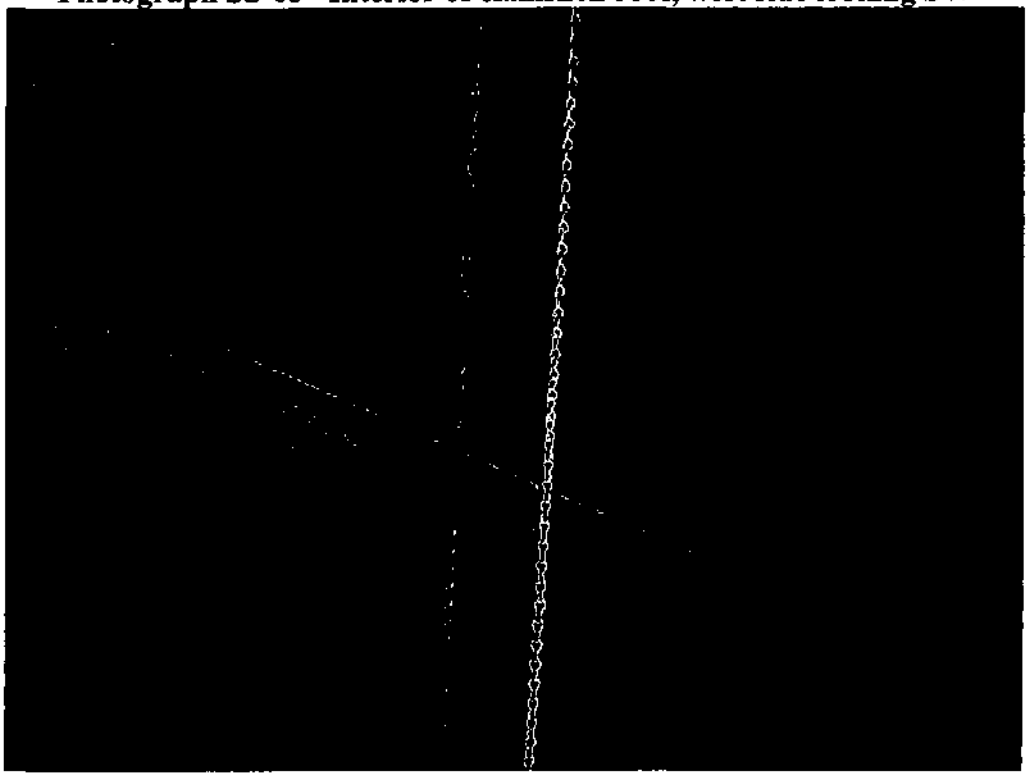


Photograph SS-02 Clamshell roof viewed from NW looking SE

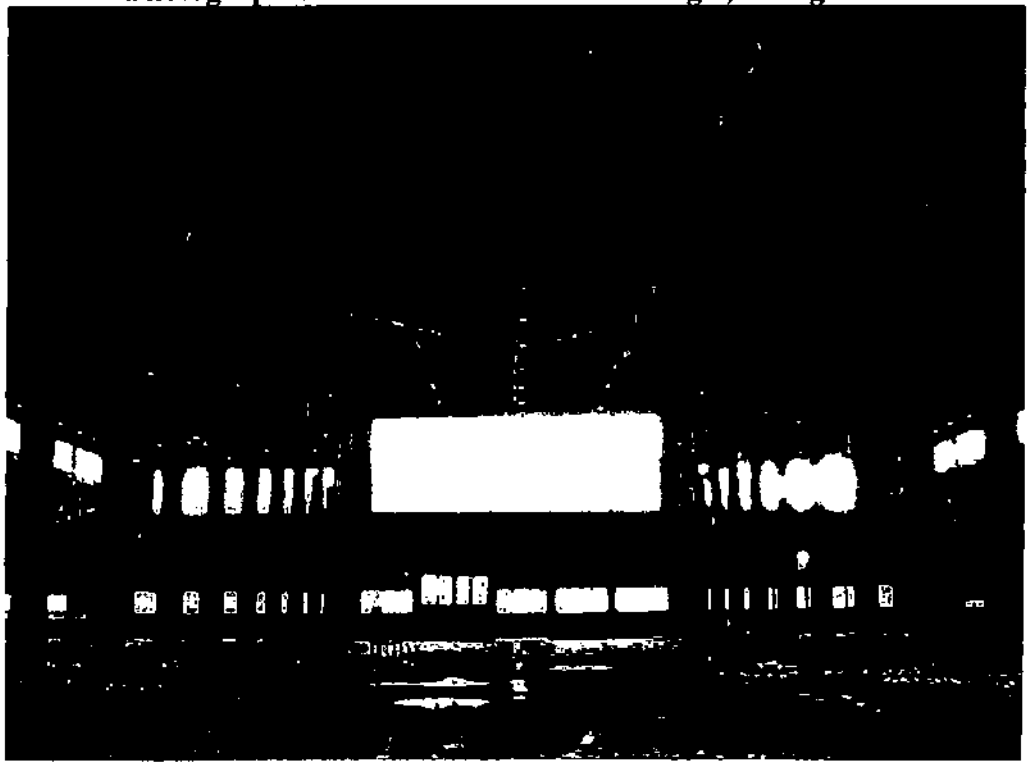


SLAAP Building 2 Screening Study Photograph Log

Photograph SS-03 Interior of clamshell roof, west side looking SW

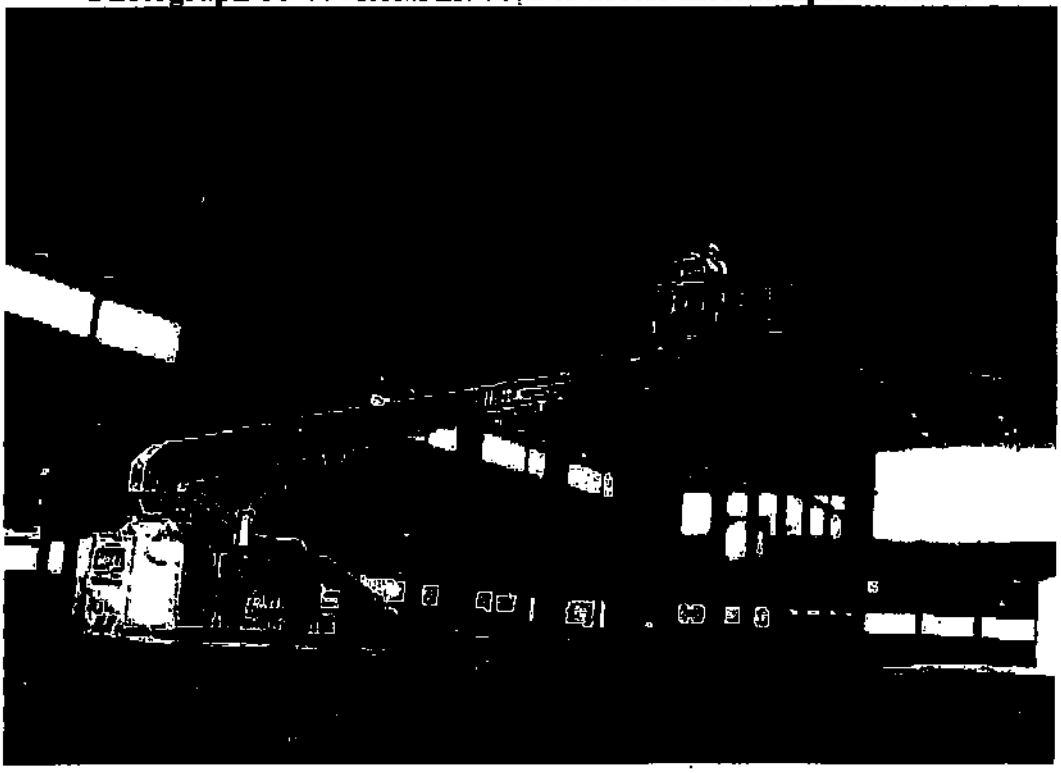


Photograph SS-04 Center area of Building 2, facing north



Photograph SS-05 Northern portion of Building 2 viewed from the western mezzanine level

Photograph SS-06 Aerial lift used to access most sample locations

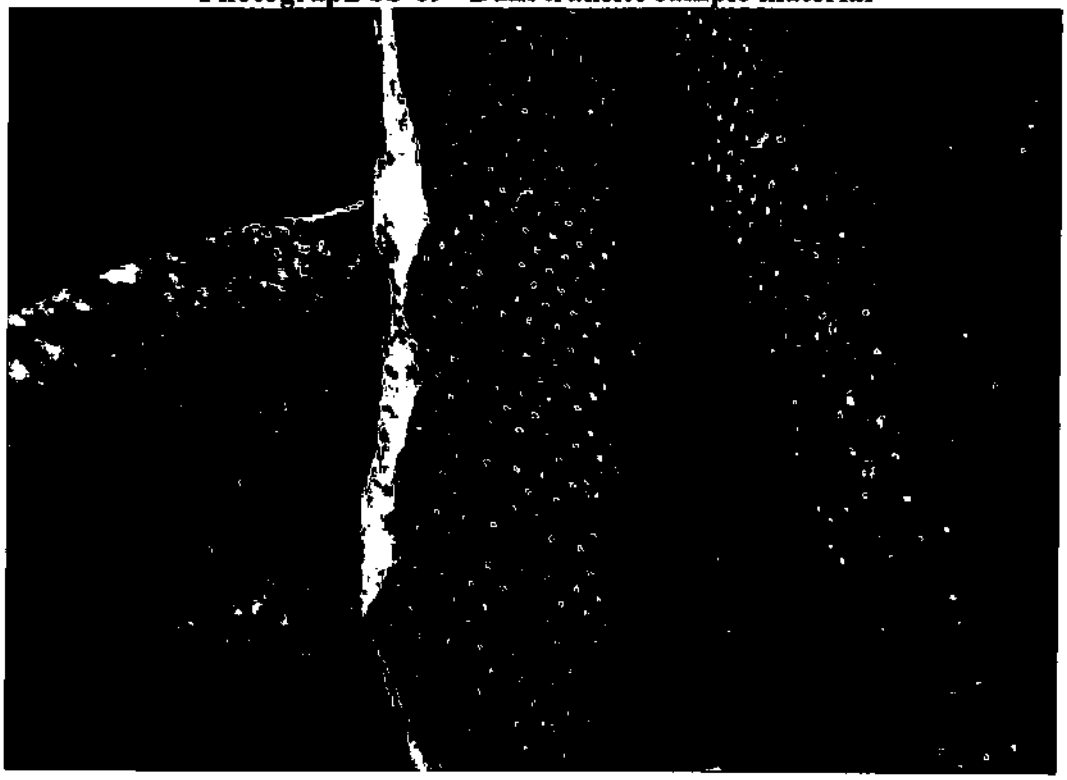


Photograph SS-07 Aerial lift reaching to 02CR-10 sample location

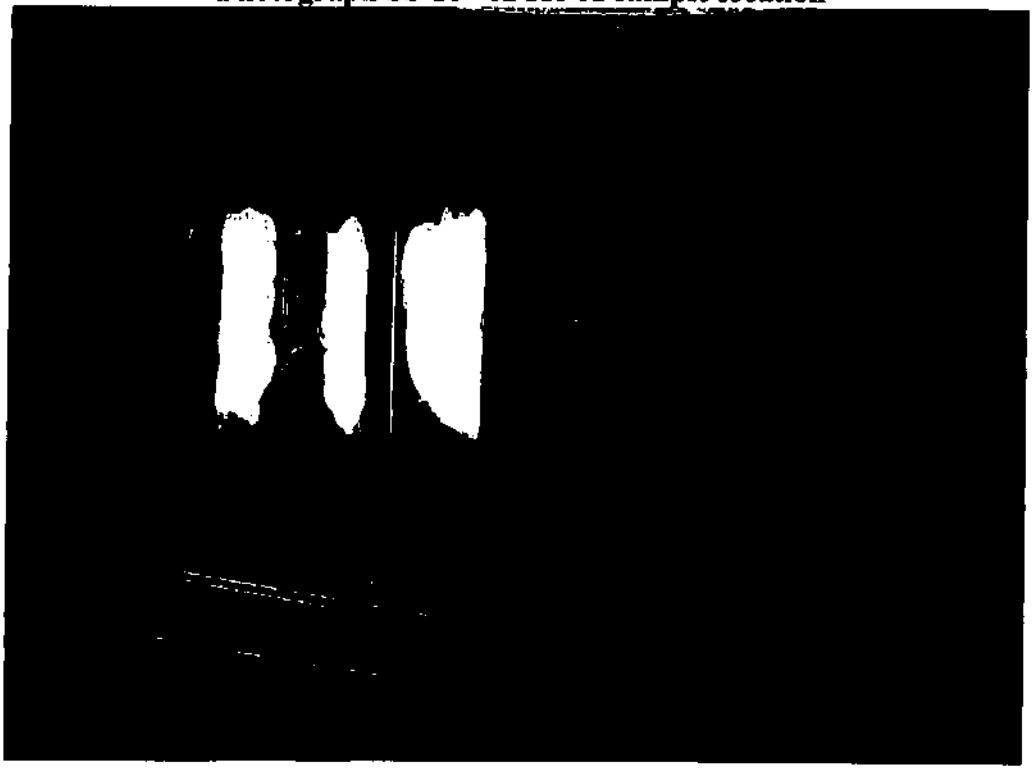
Photograph SS-08 Aerial lift reaching to 02CR-02 sample location

SLAAP Building 2 Screening Study Photograph Log

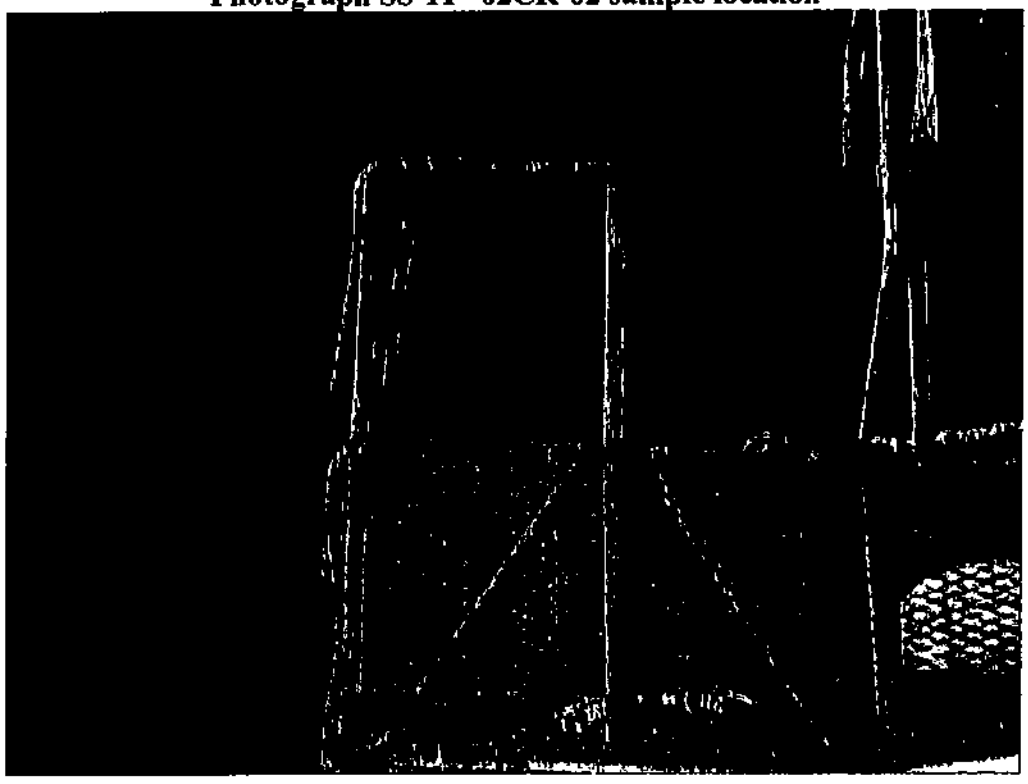
Photograph SS-09 Bulk transite sample material



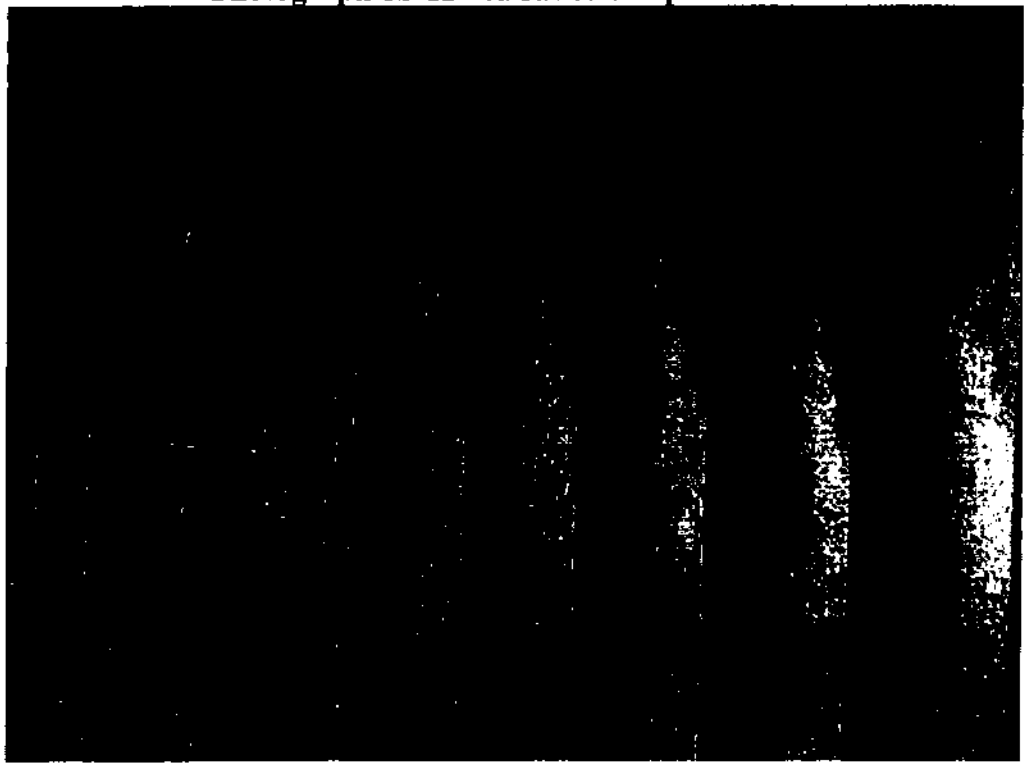
Photograph SS-10 02CR-01 sample location



Photograph SS-11 02CR-02 sample location



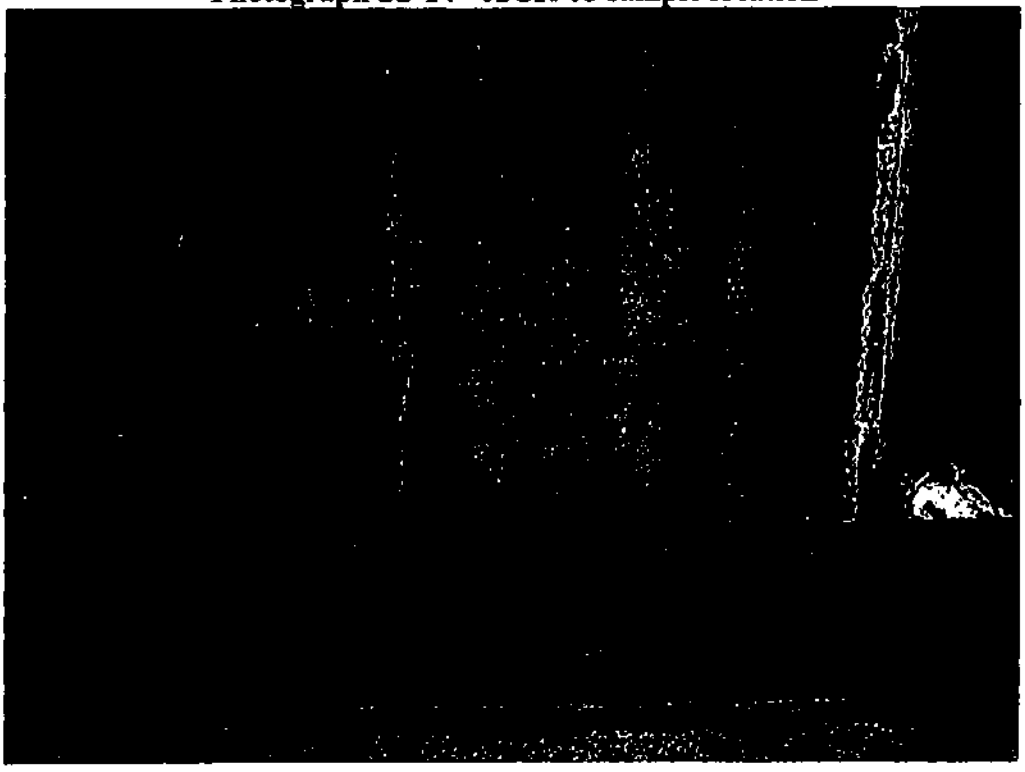
Photograph SS-12 02CR-03 sample location



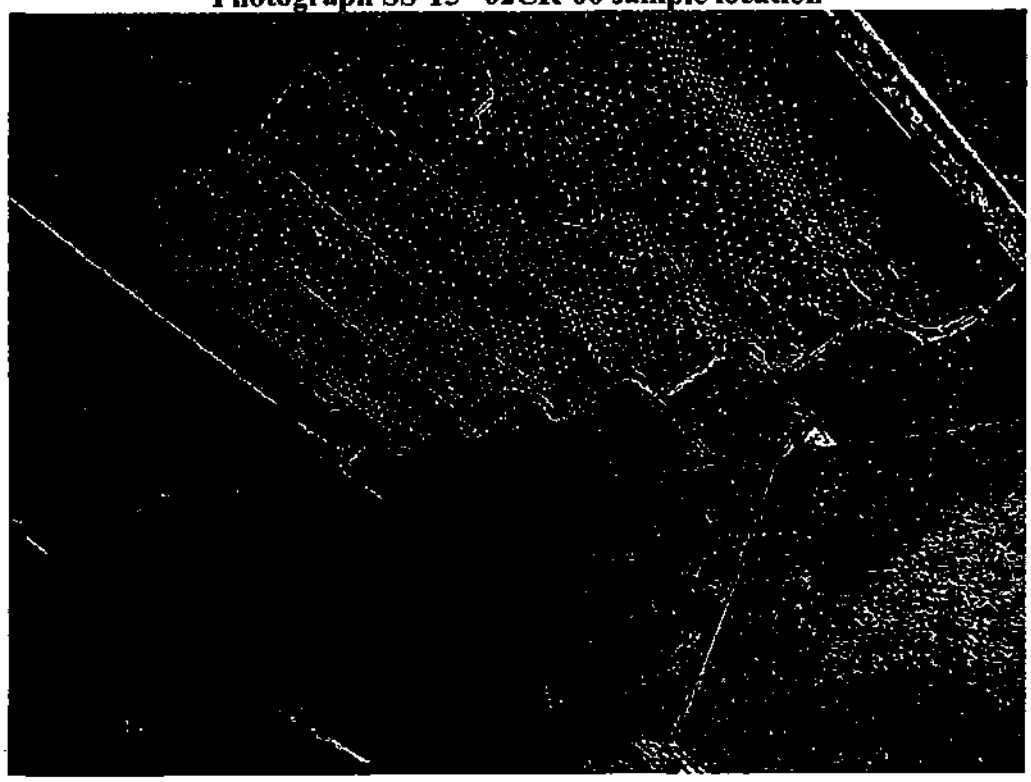
SLAAP Building 2 Screening Study Photograph Log

Photograph SS-13 02CR-04 sample location

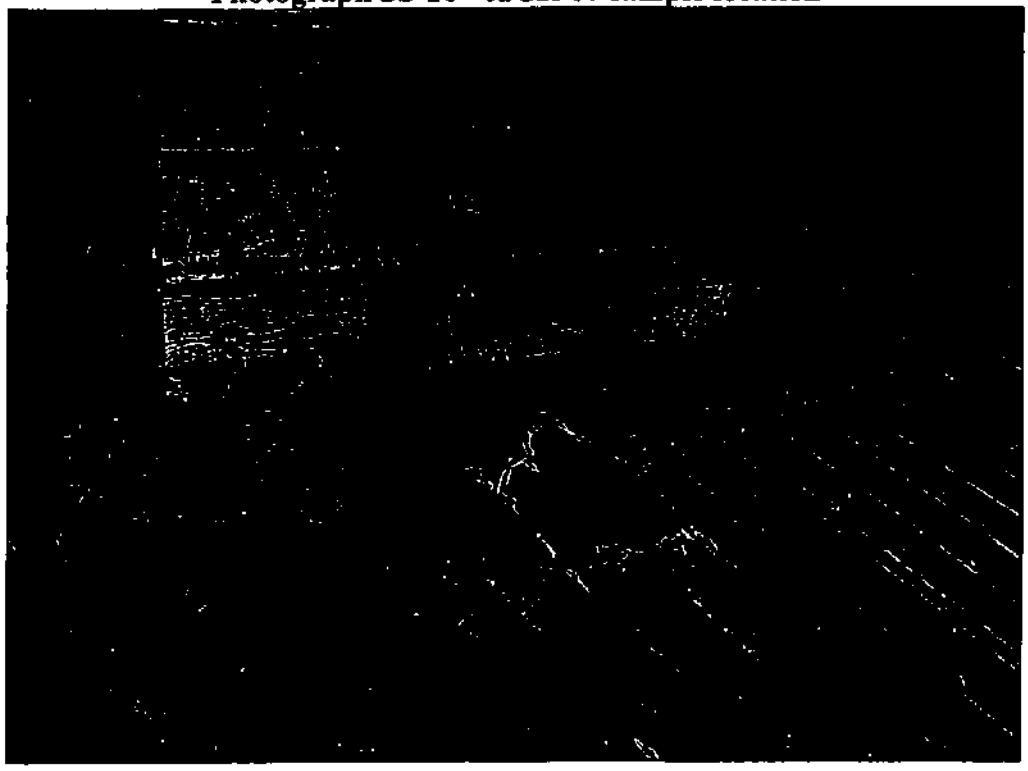
Photograph SS-14 02CR-05 sample location



Photograph SS-15 02CR-06 sample location

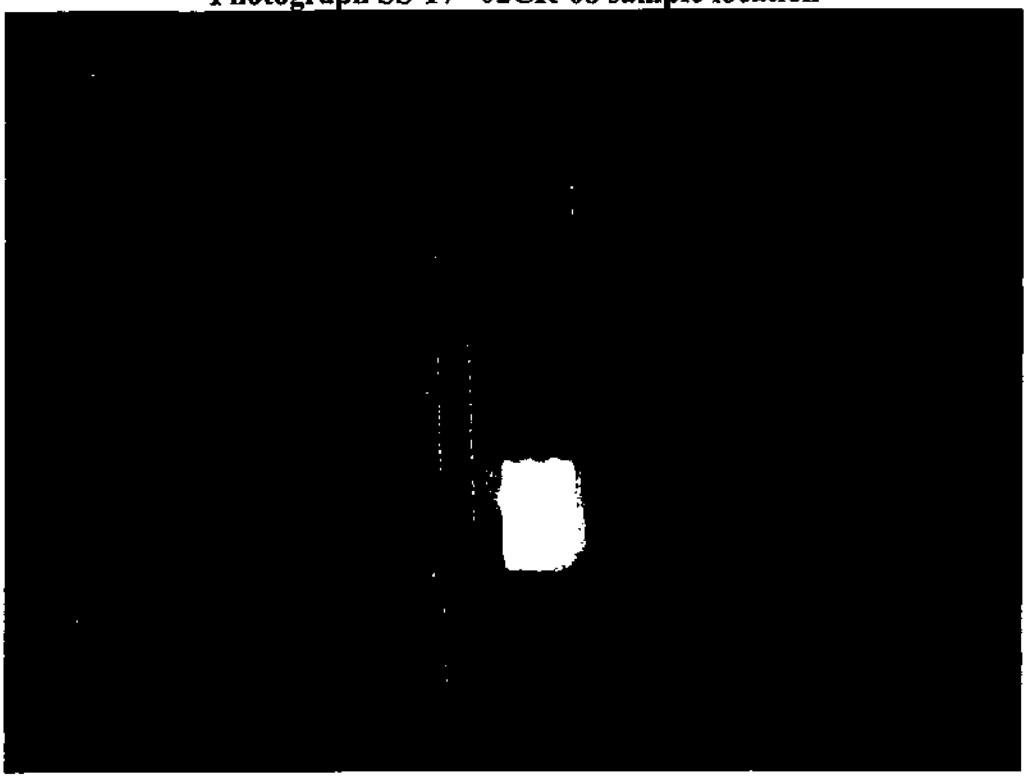


Photograph SS-16 02CR-07 sample location

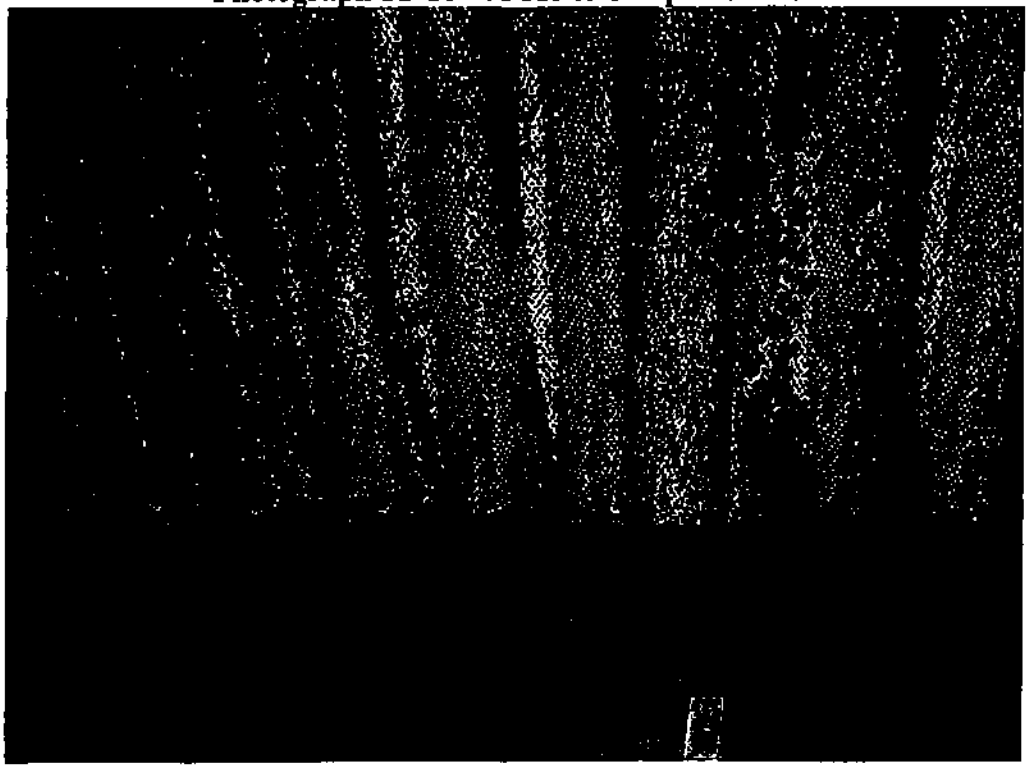


SLAAP Building 2 Screening Study Photograph Log

Photograph SS-17 02CR-08 sample location

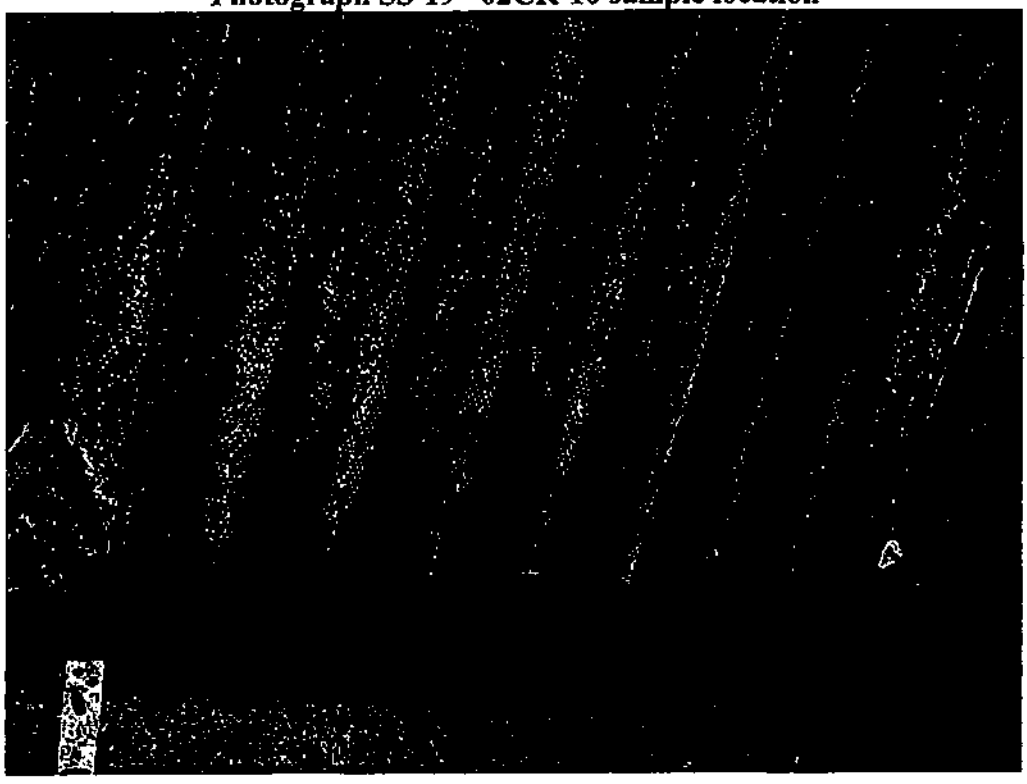


Photograph SS-18 02CR-09 sample location

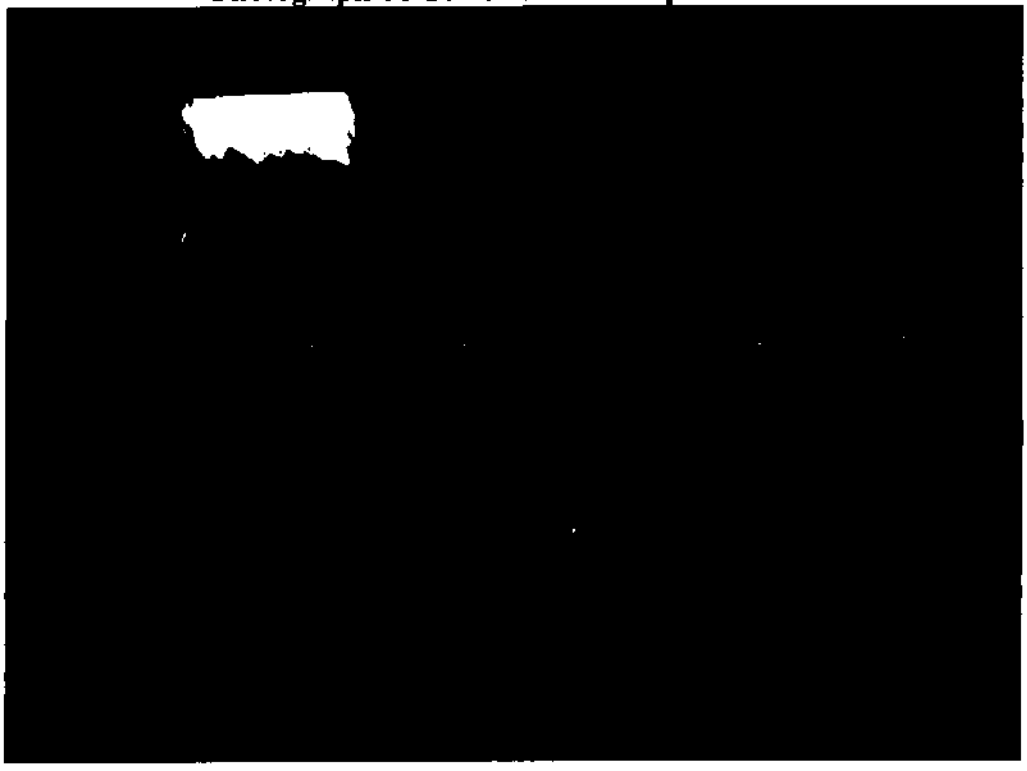


SLAAP Building 2 Screening Study Photograph Log

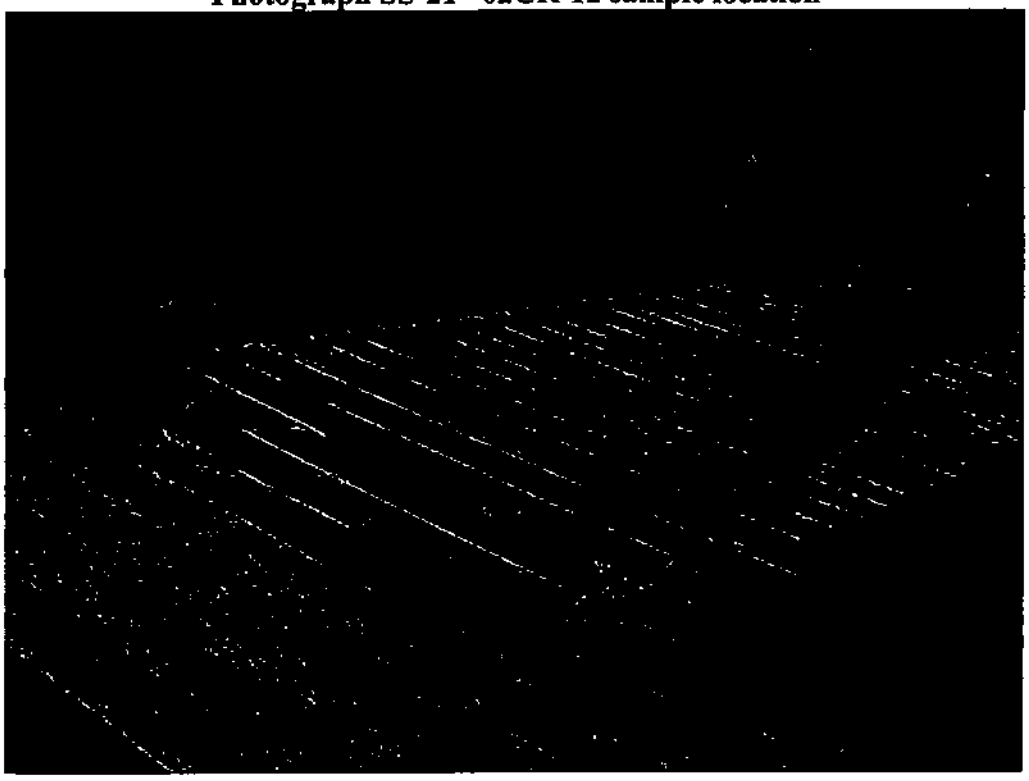
Photograph SS-19 02CR-10 sample location



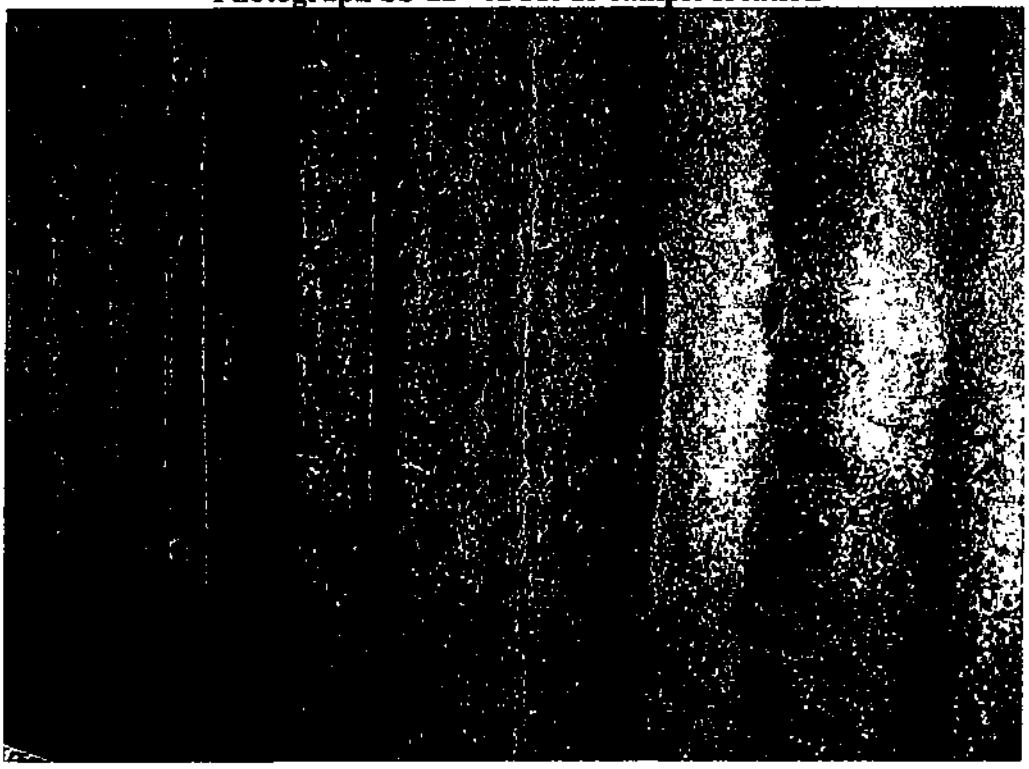
Photograph SS-20 02CR-11 sample location



Photograph SS-21 02CR-12 sample location

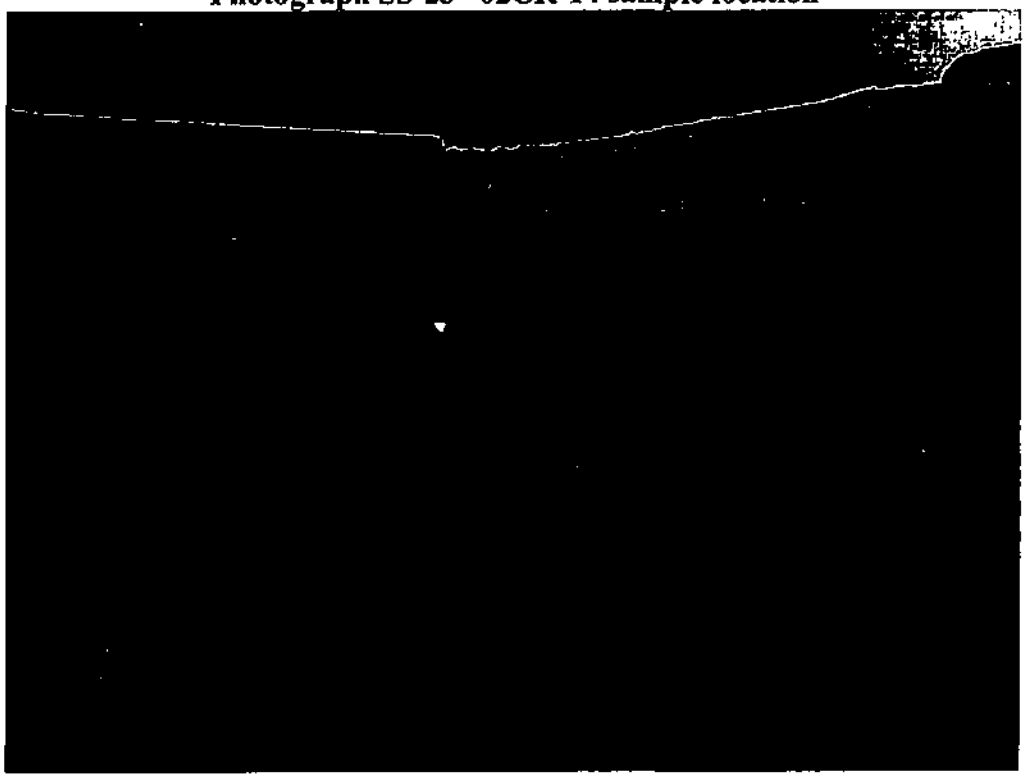


Photograph SS-22 02CR-13 sample location

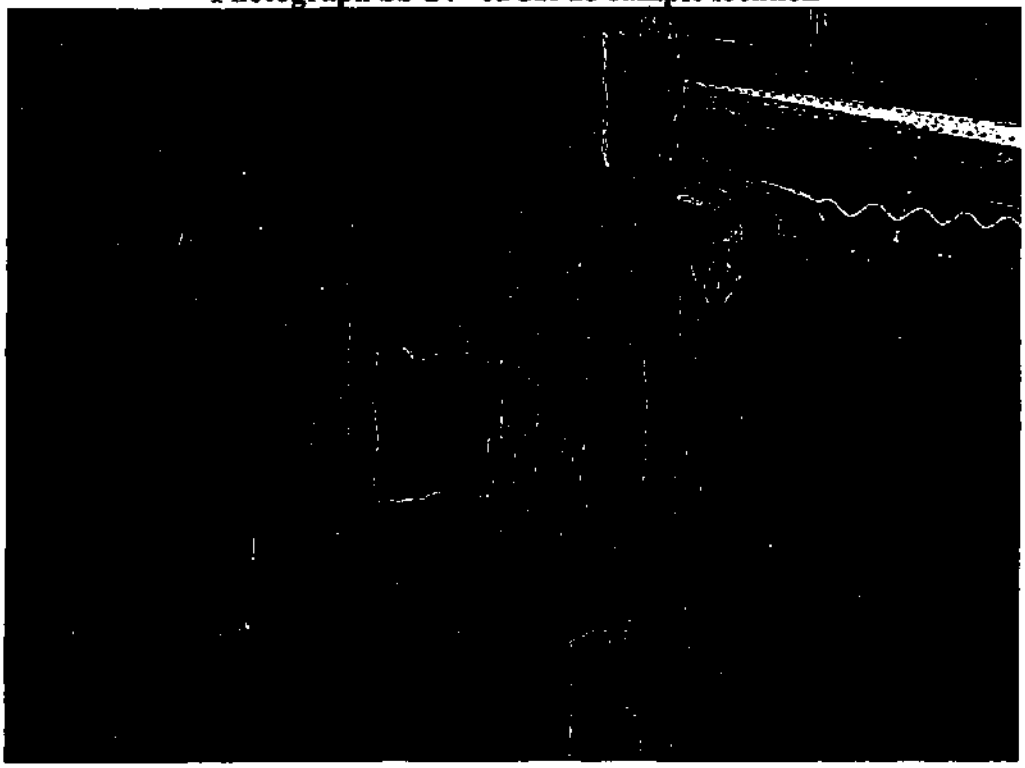


SLAAP Building 2 Screening Study Photograph Log

Photograph SS-23 02CR-14 sample location

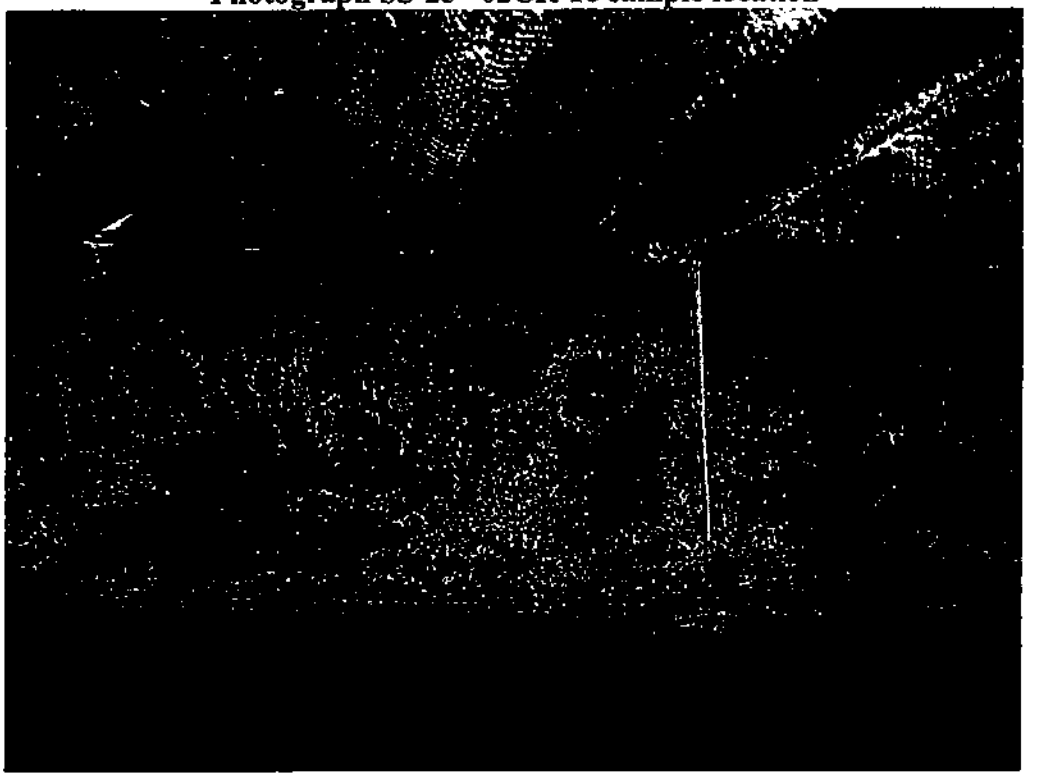


Photograph SS-24 02CR-15 sample location

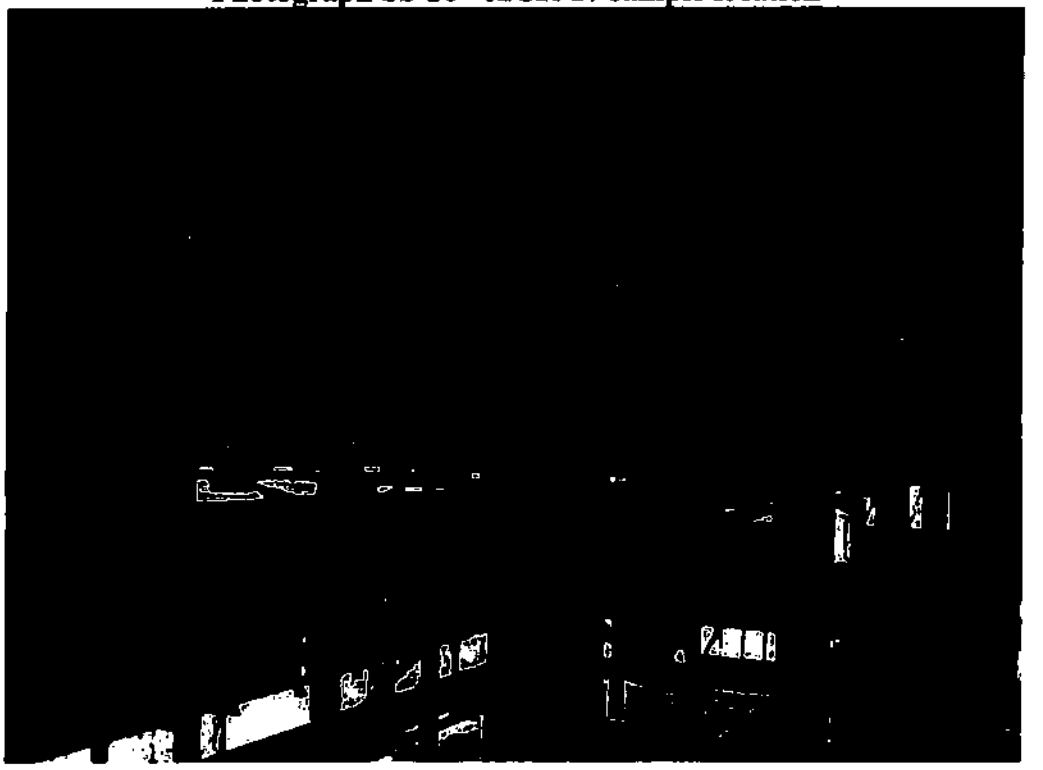


SLAAP Building 2 Screening Study Photograph Log

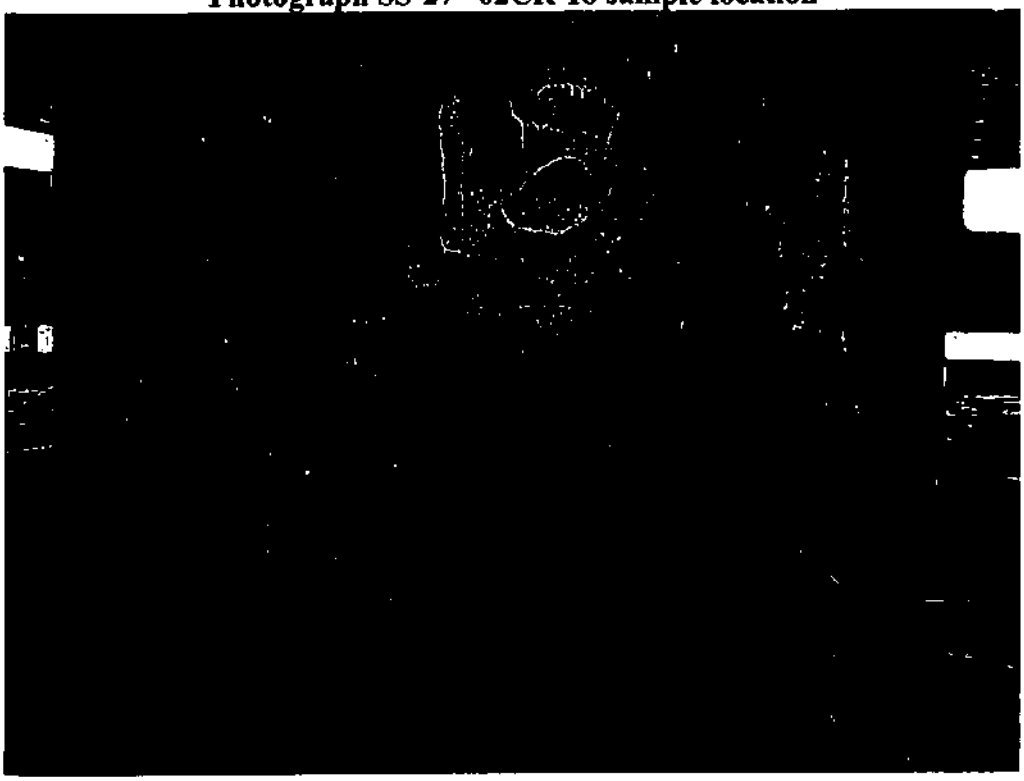
Photograph SS-25 02CR-16 sample location



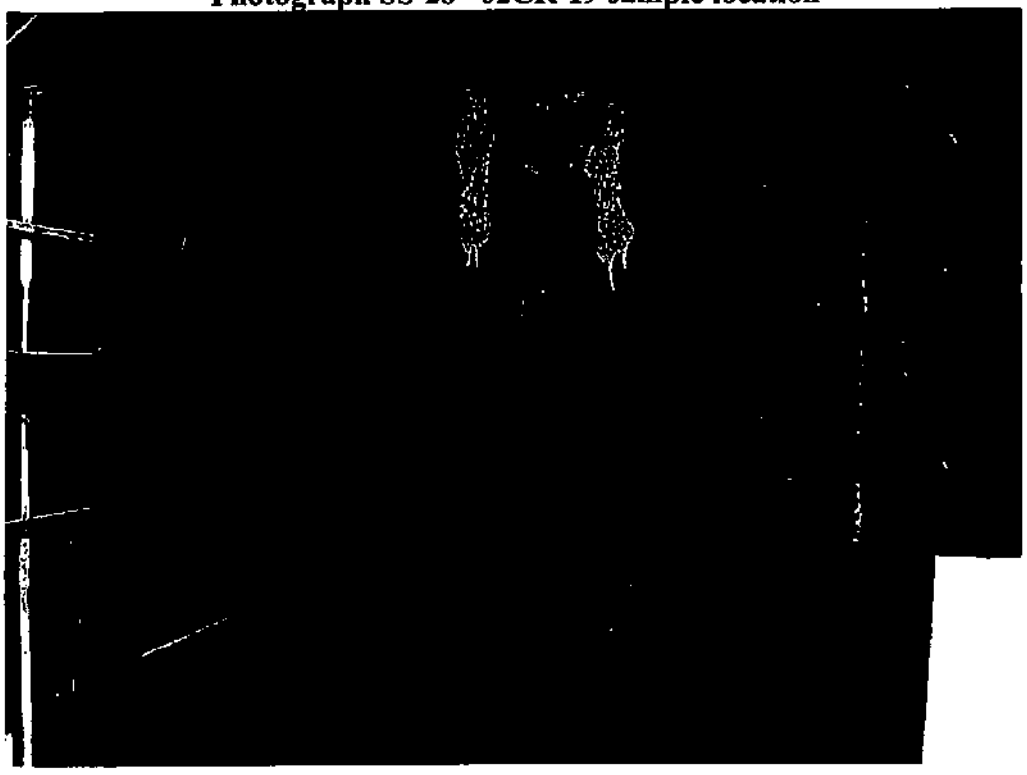
Photograph SS-26 02CR-17 sample location



Photograph SS-27 02CR-18 sample location

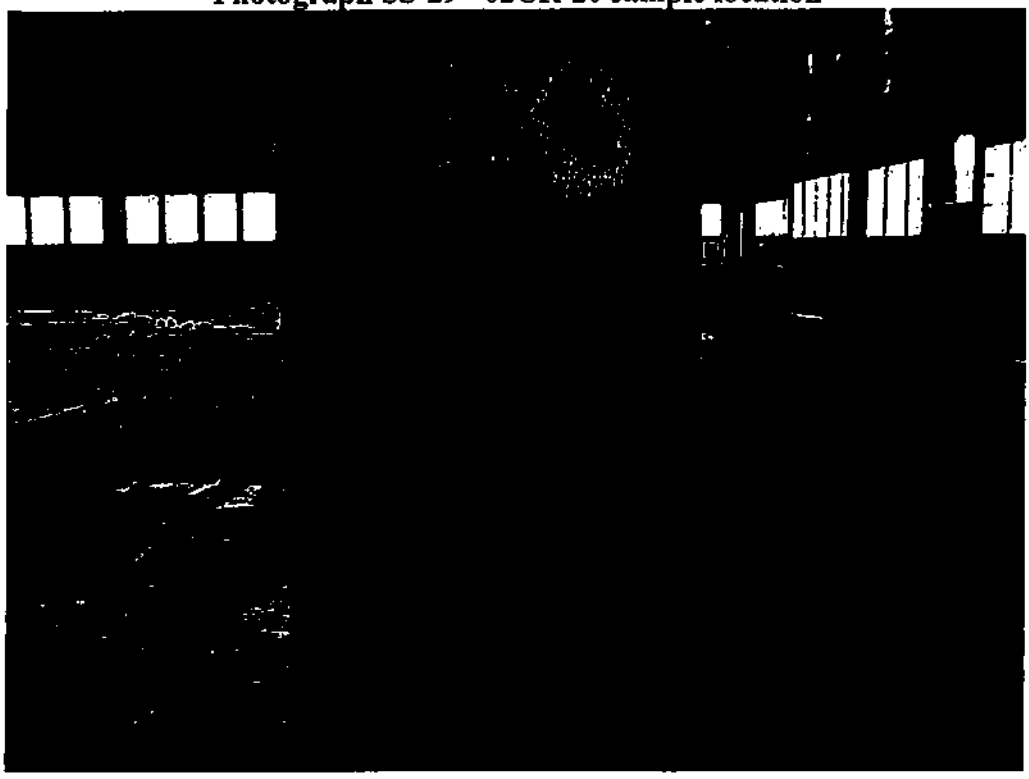


Photograph SS-28 02CR-19 sample location



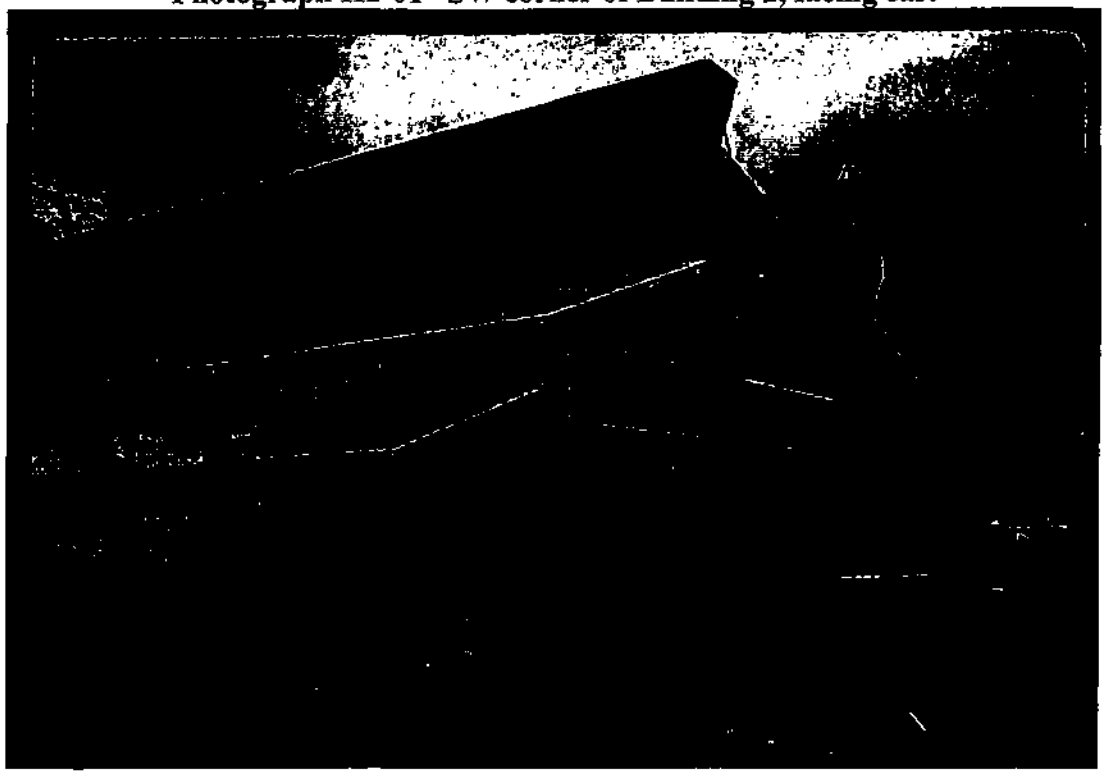
SLAAP Building 2 Screening Study Photograph Log

Photograph SS-29 02CR-20 sample location

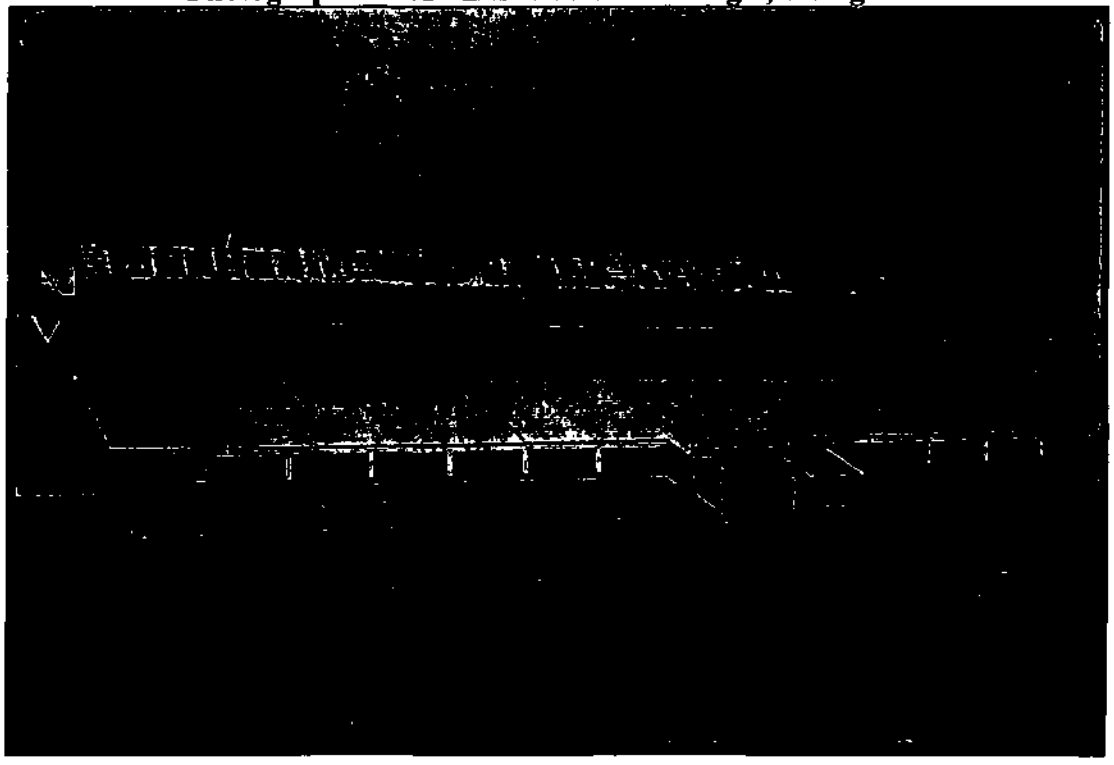


SLAAP Building 2 Screening Study Photograph Log

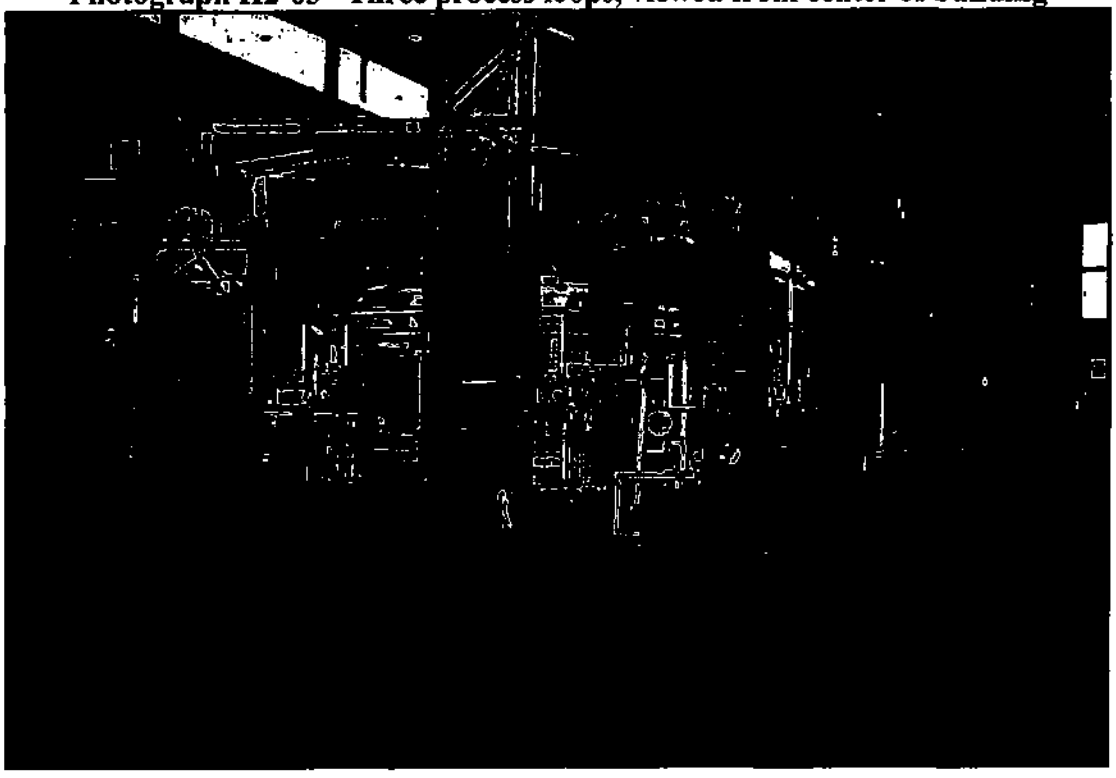
Photograph H2-01 SW corner of Building 2, facing east



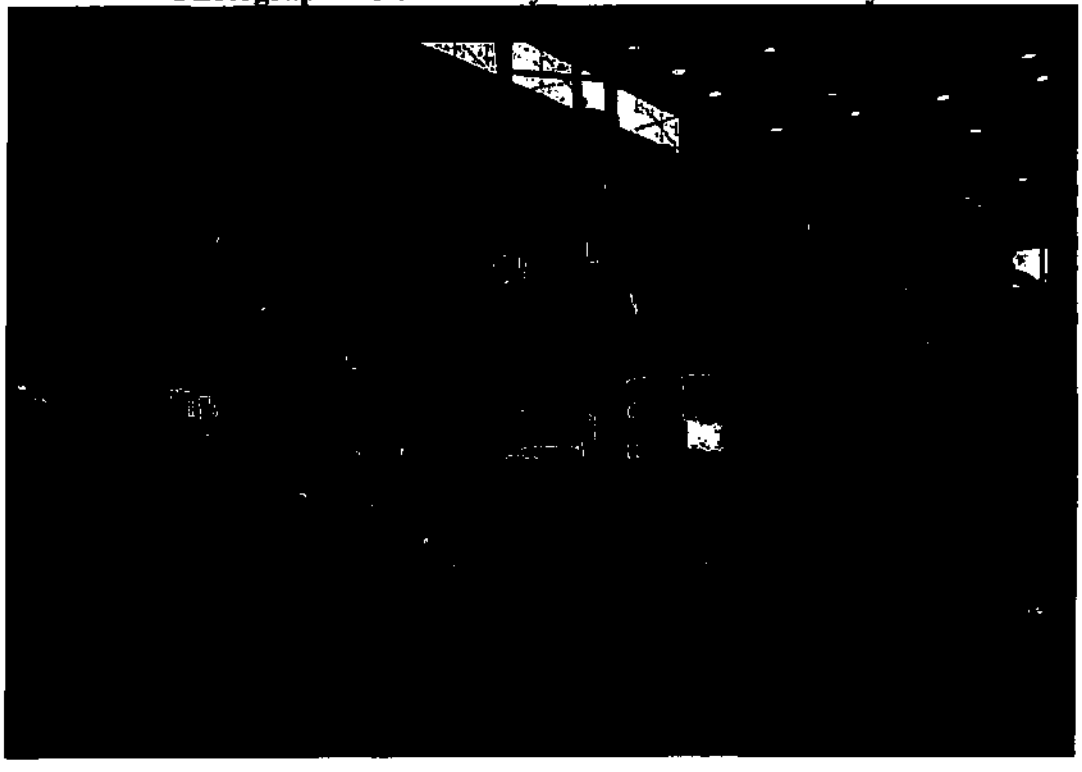
Photograph H2-02 East side of Building 2, facing west



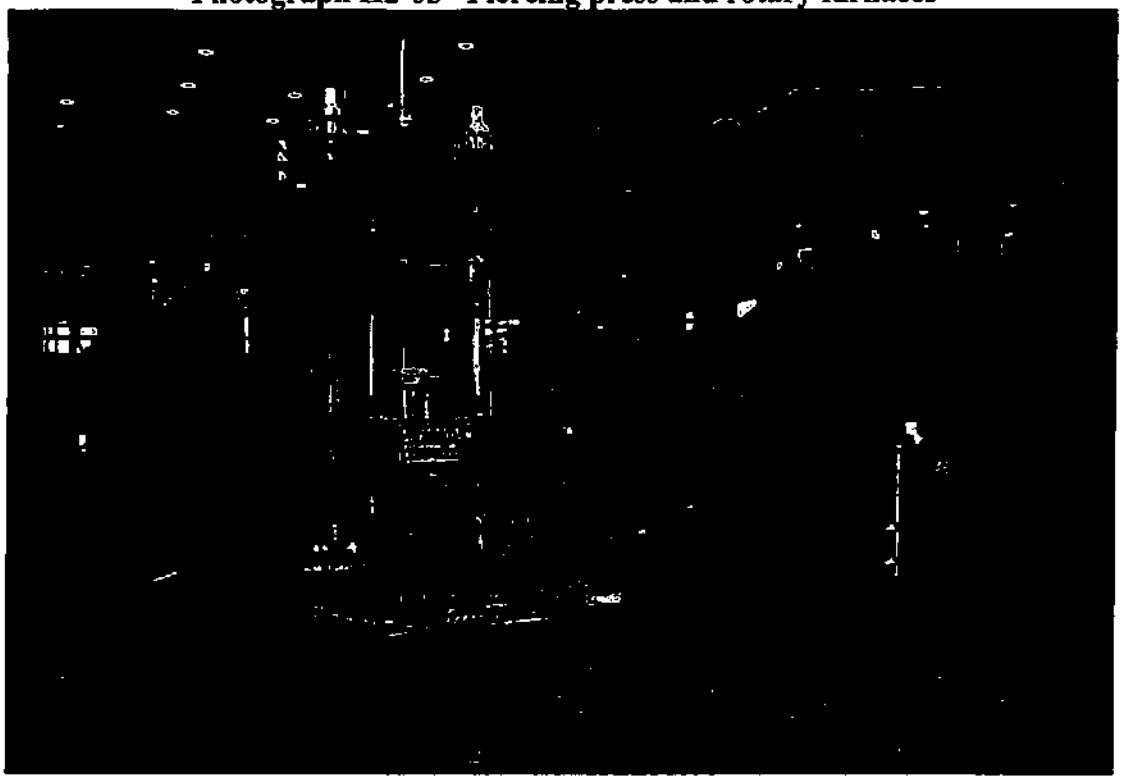
Photograph H2-03 Three process loops, viewed from center of building



Photograph H2-04 Rotary furnace and skid conveyor



Photograph H2-05 Piercing press and rotary furnaces



Photograph H2-06 Conveyor system leading to Building 3